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BRODIX'S AMERICAN AND ENGLISH PATENT CASES.

VOL. X.

DECISIONS

ON THE LAW OF

PATENTS FOR INVENTIONS

RENDERED BY

THE UNITED STATES SUPREME COURT.

FROM THE BEGINNING.

23 WALLACE, - 93 U. S. (3 OTTO),
1874. 1877.

EDITED AND ANNOTATED

BY

WOODBURY LOWERY.

WASHINGTON, D. C.
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EXPLANATION OF NOTES.

The Text of the Opinion.

The text of the opinion of the court is taken wholly from the record, and not from the official reporter. The reason for this is that the record is the original source from which the reporter himself obtains his matter ; that it is complete, no cases decided by the court being omitted therefrom ; that on application to the clerk of the court for a certified copy of an opinion, it is the copy of the opinion as it appears in the record, and not as printed in the official report that he furnishes.

Prominent among the advantages secured by printing the record, is the fact that the statement of the case, involving all those facts which the court considers material to the understanding of its opinion is made by the court itself, strictly in view of its decision, concisely and judicially, whereas the official reporters, Wallace and Otto, have omitted whole pages of the statement as made by the court, substituting their own, or have so amended and varied the court's statement as to make it practically a new one. The case of *Union Paper Collar Co. v. Van Deusen*, reported in this volume is a notable example, on consulting which the foot-notes appended will be found to point out the variation of the official reporter from the original record.

It will also be observed that this practice of these reporters has often been the cause of omitting in their reports the introductory part of the opinion as given in the record, supplying it from their own point of view and actually beginning the report of the opinion at an intermediate point of the record.

The text in this work has been prepared from printed certified copies of the record, and has undergone a second comparison while in type before printing made directly with the original record in the Supreme Court, giving an assurance that no effort has been spared to secure accuracy.

It has further been compared with the officially published reports and the

divergencies of the latter from the record pointed out in foot-notes to each case where they occur, in justification of the course pursued by the editor, and for the convenience of the profession.

The Syllabi, or The Head Notes.

The head notes have been prepared with care and considerable elaboration, the editor deeming it more convenient to the profession that he should err on the side of too great minutia in calling their attention even to what may be regarded as *dicta* of the court. At the end of each head-note will be found between brackets, the page of the opinion of which it is a digest. The head-notes are numbered consecutively and at the end of each case there will be found under the corresponding number of the head-note a note of Supreme Court Patent Cases, in chronological order, relative to the subject-matter of the head-note.

The Annotations, or Notes at ending of Case.

Notes at ending of case are of three kinds: those in the form of notes to the head-notes; those relating to the patent in suit; and those relating to cases in which the particular case reported has been cited.

Notes to the head-notes. These consist of Supreme Court Patent Cases, arranged in chronological order, in which the substance of the head-note has been restated, affirmed, or applied, as the case may be; these have been brought down to the latest decisions of the court accessible at the date of printing the volume.

The patent in suit is next given with its reissues, if any, followed by a chronological list of all reported Federal suits in which the patent has been involved.

Citations of the particular opinion. Then follows a list of those cases in which the opinion reported has been cited. This list includes Federal, State, and Canadian Cases, opinions of the Attorney-General, and of the Commissioner of Patents, and the latest text-books, Curtis, 4th Edit., Walker, Merwin, and Abbott.

All the lists are chronological in arrangement and in the list of citations the dates are appended.

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Additional References, &c.

To facilitate the finding of any case appearing in the notes, not only is the original report given, but also volume and page of Robb, Fisher, Banning and Arden, and others in which it is reprinted.

Both in the opinion and arguments the rule has been followed of adding the *names* to cases cited by page and volume only, these additions to the text being included in brackets.

Blank lined spaces after each note and a blank page at the end of each case are left for the insertion of additional citations and of general notes.

Tables.

There are added a number of tables and two indexes for ready reference. These are Tables of Cases, Reference Table of Cases, Table of Patents in Suit, of Cases Cited, of Abbreviations, of Names of Justices, of Names of Counsel, an Index Digest and a Digest of Notes.

Reference is made throughout the work to the volume and page of the English cases already published as part of this series, wherever they occur.

WOODBURY LOWERY.

WASHINGTON, D, C.

Jan. 1, 1889.

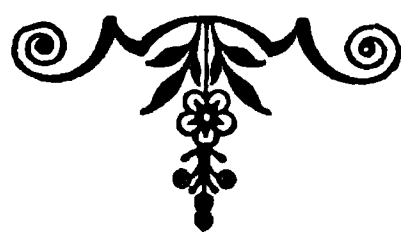


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The object of comparing the pages in these cases is for convenience of reference showing where the text in the opinion of the court on each page of the Official Report is found in this edition, or if an attorney wishes to cite the Official Reports while using these volumes, he can readily do so by turning to this table and finding on what page in the official edition any page of the Opinion of the Court in this volume may be found.

In making this comparison, out of justice to ourselves, where we have inserted new material such as drawings, specificifications, arguments of counsel, statements and parts of the opinion from the records which are not found in the Official edition we have so indicated.

As an example in the use of this table take the case of The Corn-Planter Patent, which begins in 23 Wallace on page 181—see first column; in this volume, page 1—see third column; the opinion of the court begins in Wallace on page 203—see second column; in this volume, page 50—see fourth column, and thus through the opinion each page is compared. We have inserted in this volume many drawings and specifications which are not found in the Official Reports, and omissions in the consecutive numbering of the pages of the Official Report can be accounted for in the same manner.

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* Rich v. Close	8 Blatch. 41	250. A.
Roberts v. Dickey	4 Fish. 532	49. A.
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“ “	3 Pittsb. 352	174. A.
“ “	4 Brews. 260	174. A.
“ “	4 Fish. Pat. Cas. 532	174, 479. A.
Roberts v. Harnden	2 Cliff. 500	320, 331, 411. A.
Roberts v. Ryer	91 U. S. 150 [p. 302 ante]	468. A.
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Ryan v. Goodwin	3 Sumn. 514	175. A.
Rubber Co. v. Goodyear	9 Wall. 788 [8 Am. & Eng. 150]	358. Dis. Opin.
“ “	2 Cliff. 371	358. Dis. Opin.
“ “	9 Wall. 788 [8 Am. & Eng. 150]	135, 231. A.
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Seed v. Higgins	8 El. & B. 755	320. A.
Serrell v. Collins	1 Fish. 289	114. A.
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Seymour v. McCormick	16 How. 490 [6 Am. & Eng. 200]	454. Opin.
“ “	16 How. 490 [6 Am. & Eng. 200]	423, 446. A.
“ “	19 How. 96 [6 Am. & Eng. 282]	49, 148. A.
“ “	3 Blatch. 225	148. A.
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“ “	11 Wall. 516 [8 Am. & Eng. 290]	101, 358, 364. Dis. Opin.
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" "	4 How. 380 [4 Am. & Eng. 398]	135, 248. A.
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" "	1 Black, 428 [7 Am. &	
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" "	1 Black, 427 [7 Am. &	
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" "	4 Fish. 123	248. A.
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TABLE OF ABBREVIATIONS

OF THE TITLE OF REPORTS AND WORKS OF LAW USED IN THIS
VOLUME.

Abb. Pat. Laws	Abbott's Patent Laws of all Nations.
Abb. U. S.	Abbott, U. S. Circuit Court.
Ad. & Ell. (N. S.)	Adolphus & Ellis, England, K. B.
Am. Law Jour.	American Law Journal.
Am. Law Reg. (N. S.)	American Law Register (New Series).
Am. & Eng.	American & English Patent Cases.
App. Cas.	Appeal Cases, English Law Reports.
Atk.	Atkyns' English Chancery Reports.
Att'y Gen.	Attorney General's Decisions.
B. & A.	Banning & Arden's Patent Cases, U. S.
B. & Ald.	Barnewall & Alderson, England, K. B.
B. & C.	Barnewall & Cresswell, England, K. B.
Bald.	Baldwin, U. S. Circuit Court.
Ban. & Ard.	Banning & Arden's Patent Cases, U. S.
Barb.	Barbour's New York Chancery Reports.
Best & S.	Best & Smith, England, Q. B.
Bing. (N. C.)	Bingham's New Cases, England, C. P.
Biss.	Bissell, U. S. Circuit Court.
Black	Black, U. S. Supreme Court.
Blatch.	Blatchford, U. S. Circuit Court.
Bl. Com.	Blackstone's Commentaries.
B. Mon.	Ben. Monroe's Kentucky Reports.
Bond	Bond, U. S. Circuit Court.
Bradw.	Bradwell's Illinois Reports.
Brews.	Brewster's Pennsylvania Reports.
Brock.	Brockenbrough, U. S. Circuit Court.
Brodix	Brodix's American & English Patent Cases.
Brooke Abr.	Brooke's "La Graunde Abridgment."
Byrne Pat.	Byrne on Patents.
C. B. (N. S.)	Common Bench Reports, New Series.
C. D.	Commissioner of Patents' Decisions, U. S.
C. & F.	Clark & Finnelly's House of Lords Reports, England.
Car. & Kir.	Carrington & Kirwan, England, N. P.
Cliff.	Clifford, U. S. Circuit Court.
Co.	Coke, England, K. B.
Com. Dec.	Commissioner of Patents' Decisions, U. S.

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Cond. (Reps.)	Peters' Condensed Reports, U. S. Supreme Court.
Conn.	Connecticut Reports.
Cow.	Cowen's New York Reports.
Cranch.	Cranch, U. S. Supreme Court.
Ct. of Claims	Court of Claims, U. S.
Curt.	Curtis, U. S. Circuit Court.
Curtis on Pats.	Curtis on Patents, U. S.
Dall.	Dallas, U. S. Circuit Court.
Dan. Ch. Pr.	Daniell's Chancery Practice.
Dav.	Davies' Patent Cases, England.
Denio	Denio's New York Reports.
Dill.	Dillon, U. S. Circuit Court.
E. & B.	Ellis & Blackburn, England, K. B.
East	East, England, K. B.
Ellis & B.	Ellis & Blackburn, England, Q. B.
Ell. & Bl.	Ellis & Blackburn, England, K. B.
Eng. C. L. (C. B. N. S.)	English, Common Law Reports.
Eng. L. & E.	English Law & Equity Reports.
Exch. W. H. & G.	Exchequer Reports (Welsby, Hurlstone & Gordon), England.
Fed. Rep.	Federal Reporter, U. S.
Fish.	Fisher's Patent Cases, U. S.
Fish. Pat. Rep.	Fisher's Patent Reports, U. S.
Flipp.	Flippin, U. S. Circuit Court.
Gall.	Gallison, U. S. Circuit Court.
Gill	Gill's Maryland Reports.
Godson on Pats.	Godson on Patents, England.
Gratt.	Gratton's Virginia Reports.
Gray	Gray's Massachusetts Reports.
Greenl. Ev.	Greenleaf on Evidence.
Gres. Ev. in Eq.	Gresley's Equity Evidence.
H. Bl.	Henry Blackstone, England, C. P.
H. of L.	House of Lords' Cases.
H. & N.	Hurlstone & Norman, England, Exch.
Har. & Gill	Harris & Gill's Maryland Reports.
Hemp.	Hempstead, U. S. Circuit Court.
Hill	Hill's New York Reports.
Hilliard	Hilliard on Remedies for Torts.
Hind. Pat.	Hindmarch on Patents, England.
Hob.	Hobart, England, K. B.
Holmes	Holmes, U. S. Circuit Court.
How.	Howard, U. S. Supreme Court.
Hughes	Hughes, U. S. Circuit Court.
Hurl. & Colt.	Hurlstone & Coltman, England, Exch.
Hurl. & Nor.	Hurlstone & Norman, England, Exch.
J. B. Moore	J. B. Moore, England, C. P.

Johns.	Johnson's New York Reports.
Jur. N. S.	The Jurist, New Series, London.
Kent Com.	Kent's Commentaries on American Law.
Kyd Aw.	Kyd on Awards.
L. ed.	Lawyer's Edition of Supreme Court Reports.
L. J. N. S.	The Law Journal, New Series, London.
L. R. C. P.	English Law Reports, Common Pleas.
L. R. Eq.	English Law reports, Equity.
L. Times (N. S.)	Law Times, New Series.
Law's Am. Dig.	Law's American Digest of Patents.
Law's Dig.	Law's Digest, London.
Law T. (N. S.)	Law Times Reports, New Series.
Leg. Int.	Legal Intelligencer.
M. & Cr.	Milne & Craig, England, Ch.
M. & W.	Meeson & Welsby, England, Exch.
MacA.	MacArthur's District of Columbia Reports.
McAll.	McAllister, U. S. Circuit Court.
McC.	McCrary, U. S. Circuit Court.
McCrary	McCrary, U. S. Circuit Court.
McL.	McLean, U. S. Circuit Court.
McLean	McLean, U. S. Circuit Court.
Mackey	Mackey, U. S. Circuit Court.
Mad.	Maddock's English Chancery Reports.
Maine	Maine Reports.
Man. G. & Scott	Manning, Granger & Scott, England, C. P.
Marsh.	Marshall, England, C. P.
Mas.	Mason, U. S. Circuit Court.
Mass.	Massachusetts Reports.
Md.	Maryland Reports.
Me.	Maine Reports.
Mees. & W.	Meeson & Welsby, England, Exch.
Mees. & Wels.	Meeson & Welsby, England, Exch.
Merwin on Pat. Invt.	Merwin on Patentability of Inventions.
Met.	Metcalf's Massachusetts Reports.
Mich. Rep.	Michigan Reports.
Mod.	Modern Reports, England, K. B.
Ms. D. C.	Manuscript Cases, District of Columbia.
Munf.	Munford's Virginia Reports.
N. H.	New Hampshire Reports.
N. Y.	New York Court of Appeals Reports.
N. Y. Leg. Obs.	New York Legal Observer.
New Eng. R.	New England Reporter.
O. G.	Official Gazette of Patent Office, U. S.
Ohio	Ohio State Reports.
Ontario Rep.	Ontario Reports.
Pa.	Pennsylvania Reports.
Pa. Law Jour. Rep.	Pennsylvania Law Journal Reports.

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XXXV

Paige Ch. R.	Paige's New York Chancery Reports.
Paine	Paine, U. S. Circuit Court.
Pars. Cont.	Parson on Contracts.
Pet.	Peters, U. S. Supreme Court.
Pet. C. C.	Peters, U. S. Circuit Court.
Phila.	Philadelphia Reports.
Pick.	Pickering's Massachusetts Reports.
Pitta. R.	Pittsburgh Reports.
Pott. Dwarris	Potter's Ed. of Dwarris on Statutes.
Q. B.	Queen's Bench Reports.
R. & M.	Russell & Mylne England Ch.
Rep.	The Reporter, U. S.
Robb.	Robb's Patent Cases.
Salk.	Salkeld, England, K. B.
Sawy.	Sawyer, U. S. Circuit Court.
Scott (N. R.)	Scott's New Reports, England C. P.
Seld.	Selden Reports (5-10 N. Y. Court of Appeals).
Sm. Lead. Cas.	Smith's Leading Cases.
Story	Story, U. S. Circuit Court.
Sumn.	Sumner, U. S. Circuit Court.
Sup. Ct. Rep. N. Y.	Supreme Court Reports, New York.
T. R.	Term Reports (Durnford & East), England.
Taney	Taney, U. S. Circuit Court.
Taylor Ev.	Taylor on the Law of Evidence.
Taunt.	Taunton, England, C. P.
Term R.	Term Reports (Durnford & East), England.
U. S.	United States Supreme Court Reports.
Ves.	Vesey, England, Ch.
Vern.	Vernon, England, Ch.
Vt.	Vermont Reports.
W. & M.	Woodbury & Minot, U. S. Circuit Court.
Walker on Pats.	Walker on Patents.
Wall.	Wallace, U. S. Supreme Court.
Wall., Jr.	Wallace, Jr., U. S. Circuit Court.
Wash.	Washington, U. S. Circuit Court.
Watts & S.	Watts & Sergeant's Pennsylvania Reports.
Web. P. C.	Webster's Patent Cases, England.
Wend.	Wendell's New York Reports.
West. Law J.	Western Law Journal, U. S.
Wheat.	Wheaton, U. S. Supreme Court.
Whit.	Whitman's Patent Cases, U. S.
Wood. & M.	Woodbury & Minot, U. S. Circuit Court.
Woods	Woods, U. S. Circuit Court.

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DECISIONS
OF
THE SUPREME COURT
OF
THE UNITED STATES.
IN
PATENT CASES.

THE CORN-PLANTER PATENT.*

GEORGE W. BROWN, APPELLANT, v. RUFUS B. GUILD,
EXECUTOR OF GEORGE I. BERGEN. DECEASED, AND
FREDERICK P. SISSON.

GEORGE W. BROWN, APPELLANT, v. JAMES SELBY, ET AL.

23 Wall., 181-245. Oct. Term, 1874.†

[Bk. 23, L. ed. 161; 6 O. G. 392.]

Argued January 16, 17, 20, 1873. Decided May 4, 1874.

Experiment. Application for patent. Bar. Abandoned experiment. Particular patent construed. Fraud. Commissioner's decision. Reissue. Construction of claims. Sufficient description. Frivolous claim..

1: Where the alleged anticipating automatic machine was never used but once, when it was worked by hand, *held* it was a mere experiment, and were it not for the application for a patent, would justly be regarded as an abandoned experiment. (p. 61.)

2: A mere application for a patent is not a bar to a further patent

* See Explanation of Notes, page III.

† The order followed in the printing of this case is that observed by Wallace who dates it Oct. Term, 1874. It was decided in Oct. Term, 1873, but omitted in the reports for that year.

Syllabus.

under Act 1836, sec. 7; it can only have a bearing on the question of prior invention or discovery. (p. 62.)

3. If, upon the whole of the evidence, it appears that the alleged prior invention or discovery was only an experiment and was never perfected or brought into actual use, but was abandoned and never revived by the alleged inventor, the mere fact of having unsuccessfully applied for a patent therefor, cannot take the case out of the category of unsuccessful experiments. (p. 62.)
4. Reissued letters patent No. 1,037, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, (antedated February 2, 1853,) construed and *held* there was nothing in the particular form and shape of the runner claimed which is sufficiently diverse from others that precede it, to entitle it to the merit of an invention. (p. 71.)
5. The question of fraud in obtaining a reissue must be regarded as settled by the decision of the Commissioner of Patents in granting it. (p. 71.)
6. The claim of reissued letters patent No. 1,036, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, *construed* and limited by reference to the specification in view of words "substantially as and for the purpose set forth" appended to the claim to be for a combination of the material parts of the entire machine, *held* not anticipated, valid and infringed by a machine constructed with more expensive features. (p. 71.)
7. An inventor cannot claim such parts of a machine as another had previously devised, and which worked well after the machine was perfected, although this was not till after the other had perfected his. But he may claim them in a new combination of them with devices of his own which result is a useful machine. (p. 74.)
8. The claim of reissued letters patent No. 1,038, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, *construed* to be for a novel combination producing new and useful results and *held* that it is no objection to the validity of a patent for such a combination that some of the elements of which it is composed are not new. (p. 78.)

Syllabus.

9. The summary of the patentee's claim, usually annexed to the specification, admits that all that is not included is old, and that it is sufficient compliance with the law (Act 1836, sec. 6), requiring the new to be distinguished from the old. (p. 78.)
10. Reissued letters patent No. 1,038, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, *held* to sufficiently distinguish the new from the old parts by the summary of its claim; is valid and infringed. (p. 79.)
11. Claim 1 of reissued letters patent No. 1,039, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, for "mounting the attendant upon a seed-planting machine in such a position that he can see the marks made upon the ground and operate the dropping of the seed accordingly" if construed as a claim for a result irrespective of the means of accomplishing it, is void. But if, in order to give a favorable construction, so as to sustain the patent, if it can fairly be done, the claim is qualified by the words "substantially as herein set forth," and the means are described in the specification, it is no longer open to the objection. Claim 2 *held* a new and valid combination and the reissue *held* infringed. (p. 80.)
12. *Held* that reissued letters patent No. 1,036, 1,038 & 1,039, G. W. Brown, September 11, 1860, original patent No. 9,893, August 2, 1853, are not for substantially the same combination. (p. 82.)
13. Claim 1 of reissued letters patent No. 1,091, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, *held* wanting in novelty. Claim 2, *held* to be for the application of an old device to a new use, and the reissue *held* void. (p. 83.)
14. The claim of reissued letters patent No. 1,092, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, the particular location of the driver's seat, so that by the throwing of his weight, certain results could be produced, *held* in view of state of art not to involve invention. (p. 84.)
15. The claim of reissued letters patent No. 1,093, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811,

Statement of the case.

May 8, 1855, *held* wanting in novelty if broadly construed; if limited is substantially identical with reissue claim No. 1,038, G. W. Brown, September 11, 1860. (p. 85.)

16. The claim of reissued letters patent No. 1,094, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, for a peg or stop to prevent the rear part of a machine from tipping so far as to dump the driver on the ground, is too frivolous a device to be regarded as an invention, and a patent for it is void. (p. 67.)

17. The claim of reissued letters patent No. 1,095, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, sustained as novel and *held* infringed. (p. 87.)

[Citations in dissenting opinion of the court:]

Gould v. Rees, 15 Wall. 194 [9 Am. & Eng. 39]. p. 94.

Gill v. Wells, 22 Wall. 1 [9 Am. & Eng. 471]. p. 94.

Vance v. Campbell, 1 Black, 428 [7 Am. & Eng. 117]. p. 100.

Prouty v. Ruggles, 16 Pet. 341 [4 Am. & Eng. 351]. p. 100.

Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290]. p. 101.

Appeals from the Circuit Court of the United States for the Northern District of Illinois.

The cases are stated by the court.

The drawings and specifications of the several letters patent referred to in the opinion of the court are as follows:

GEORGE W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 9,893, dated February 2, 1853; Reissue No. 526, dated February 16, 1858; Reissue No. 1,036, dated September 11, 1860.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox and State of Illinois, have invented

G. W. BROWN.

Corn Planter.

No. 1,036.

Reissued Sept. 11, 1860.

Fig. 3.



Fig. 1.

George W. Brown
by
A. S. Johnston

Statement of the case.

certain new and useful improvements in seed-planters; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or “machine dropping,” as it is termed. Fig. 2 represents a side elevation of the same. Fig. 3 represents the same machine arranged for hand-dropping. Fig. 4 represents a side elevation, and Fig. 5 a top plan, of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

Corn is planted at that season of the year when the soil is moist and soft, and on the rich soils of the west it is so slippery and mucky in many places as to make what is known as “machine-planting” impossible, as the wheels or their axles are the motive power by which the seed-slides are operated, and as these wheels do not, owing to their slip, advance the machine, or with the machine, regularly over the field, the spaces between the hills or rows are not uniform or in line. This makes the after cultivation of the corn very difficult, as the cultivator moving in a direct line throws up many of the plants. In drier or more sandy and less sticky soils automatic or machine planting may be done. My machine is applicable to either use and to any of the soils, it having peculiar characteristics which make it applicable to either the machine or the hand-planting.

The object and purpose of this part of my invention relates to hand-planting machines, in which the person who operates the seed-slides sits or rides on the machine in a convenient position for overlooking his work and governing his motions by the previously-made furrow or marks on or in the ground, so as to preserve regular rows, hills, or spaces between the rows or hills; and this part of my

Statement of the case.

invention consists, first, in a seed-planting machine constructed principally of frame-work, the front part of which is supported on not less than two runners or shoes, and the rear part supported on not less than two wheels, the wheels being arranged to follow in the line of the runners, for a purpose to be hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A represent a pair of runners or shoes, properly braced apart by cross-braces B C D in any manner that will make them sufficiently rigid and at a distance from each other equal to that between the rows or hills of corn.

E is a tongue united to the cross-pieces in any of the usual modes, so as to be midway between the pair of runners or shoes. To this tongue which may be said to constitute a part of the frame of the machine, the double-trees F, to which the team is hitched, is fastened. The seed-hoppers G G are secured to this frame immediately over the rear of the runners. The seed-slides or valves *a*, that allow the grains in measured or regulated quantities to pass out of these hoppers and into the gash or furrow prepared for them by the runners or shoes, are connected together by a bar, *b*, to which a lever, *c*, or its equivalent is attached, so that the attendant from his seat or stand H may readily see the previously-made marks in or on the ground and operate lever, *c*, to make the droppings conform thereto.

To the side pieces I of the frame are connected two bars or levers, J, (one only being seen, but both alike), by a pivot-pin or hinged joint at *d* at their front ends, and at their rear ends they slip over the journals of the rollers or wheels K. To these journals are also attached by dead-eyes or bearings the stirrup-straps *e*, to which the pieces L L are attached, the rear ends of said pieces L being connected by a cross-bar, which the driver, who walks in the rear of the machine, may catch hold of, and by raising it up also raise up the rollers, or by pressing it down raise up

Statement of the case.

the runners or shoes out of the ground. The side pieces *L* are hinged to the cross-piece *D* of the front frame by bolts passing through slots, as at *f*, or otherwise, so that the rollers may rise and fall without disturbing the runners, or so that the runners may yield or move independently of the rollers. This constitutes mainly the frame-work, which is simple, cheap, strong, and efficient for every purpose. The notch *g* in the front ends of the runners, and the lugs *h i j*, connected to the cross-bar *D*, are for the purpose of applying the auxiliary wheels *N N* and converting the machine from a hand to a mechanical dropper; but as this constitutes another branch or division of my invention I will but briefly refer to them here.

When the wheels *N N* are to be used the two bars *O O*, on which the boxes or bearings *k* for the axle *P* are placed, have their eye or loop *l* at their front ends hooked over the notches *g g*, respectively, and the rear ends of these bars *O O* have arms or levers *m* fastened to them, and which levers have their fulcra at *h j*, and their free ends meet in a guiding and supporting piece, *i*, where, by means of a pin and adjusting holes, they may be regulated so as to raise and lower and hold at any proper height the rear ends of said bars *O O*, and consequently raise, lower, or hold the wheels *N N* on them at such regulated height. The wheels and axle being thus placed, a pin, *n*, in the lever *c* takes into the zigzag *o* on the axle, and the seed-slides or valves are then operated automatically, and the attendant riding on the machine is then dispensed with.

The shoes or runners *A* have an upward-inclining edge, *p*, and a point, *q*, sufficiently high or raised as that it will climb up and over or cut or break through any ordinary intervening obstacle, and it is thin enough so as not to be required to force the earth materially in a lateral direction. It widens out gradually toward its rear end, so as to open a gash or furrow for the seed to drop into. I prefer to make the seed duct or tube *r* in the rear of the shoe or runner, as then the runner will be certain to hold open the gash

Statement of the case.

or furrow until the seeds are dropped into it. The seed-duct should at least follow the furrow-opener near or close enough to allow the seeds to drop into it before the loose earth runs in and fills it. A runner thus made causes but little friction in passing through the earth or soil, and as it is thin and smooth the muck does not cling to it and choke it up, as it would do were it of a wedge form, as heretofore used, with a vertical edge, and requiring much lateral forcing of the earth to open up a furrow.

The hinge-joint *d* admits of the runners *A* being raised up out of the ground to pass any obstacle, but particularly in turning the machine around at the ends of the furrows, for unless then raised up it would strain them very much, or its tongue or frame, as said runners or shoes are generally sunk at their rear ends several inches in the soil. In thus raising up the seeding part of the machine or the runners the tongue *E*, the point of which is attached to the necks of the team, is one fixed point, and the wheels *K K* make another fixed point (in relation to the ground), so that by using the lever *M* the shoes are raised up and suspended on these fixed points, and it is immaterial whereabouts between these fixed points the hinge-joint is, so that the runners are suspended and carried by the point of the tongue and the wheels *K*.

The attendant sitting upon his seat *H*, can readily see the previously made furrow or mark and as the seed-ducts come to the proper point he shifts his lever, allowing a charge of grain to leave each hopper and pass down into the furrows prepared for them. The rollers *K*, following after the shoes or runners, close up and press the earth down over the seeds so planted. This makes, as I allege and believe, and as has been proven, the best corn-planting machine ever devised, for it is cheap and efficient, not being subject to the many difficulties incident to other machines for a similar purpose. Where it is best known it is almost universally used, and I believe I am safe in saying that it is the first and only entirely successful machine for planting corn,

Statement of the case.

in a workmanlike manner, in the loamy, mucky soils of the west.

By "a machine composed mainly of frame-work" I mean a machine without gearing, without spoked wheels, and other expensive fixtures, and resembling a drag or sled more than it does a carriage or wagon in its main or general construction. The only wheels I use, though bearing-wheels to a certain extent, are covering-wheels, and thus perform two functions.

r r are buttons having one thick and one thin wedge-shaped end. By turning these buttons so that their thick or their thin ends or portions come under the bar D, they define the extent of motion between the hinged part M and the seeding-frame. By turning the buttons entirely out or away from the bar D another adjustment is had.

Having thus fully described the nature and object of my invention, what I claim under this patent is—

A seed-planting machine constructed principally of frame-work, the front part of which is supported on not less than two runners or shoes with upward-inclining edges, and the rear part supported on not less than two wheels, the latter being arranged to follow the former, substantially as and for the purpose set forth.

Witnesses :

GEO. W. BROWN.

A. B. STOUGHTON,
E. COHEN.

GEORGE W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 9,893, dated February 2, 1853 ; Reissue No. 526, dated February 16, 1858 ; Reissue No. 1,037, dated September 11, 1860.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in

* The drawings of this reissue are identical with those of Reissue No. 1,036. p. 5 *ante*.

Statement of the case.

the county of Knox, and State of Illinois, have invented certain new and useful Improvements in Seed-Planters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or “machine” dropping, as it is termed. Fig. 2 represents a side elevation of the same. Fig. 3 represents the same machine arranged for hand-dropping. Fig. 4 represents a side elevation, and Fig. 5 a top plan, of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

In opening up a furrow in the ground, into which corn is to be dropped from a machine, an instrument is required which should have three prerequisites: First, it must incline upward at its front edge, so as to climb up and over or cut or break through such intervening obstacles as are usually met with in planting corn; second, it must be capable of opening a furrow without much lateral displacement of the soil, as it requires much power to do so, and, besides, the soil, if mucky, as it is apt to be at the season of the year when corn is planted, will cling to the furrow-opener, and thus, instead of a clear, smooth gash, the furrow is rough and uneven; third, it must glide through the soil more like cutting with a knife than tearing it apart, and thus prevent any clinging of soils thereto, and keeping itself smooth and bright; and, fourth, it must be long enough to form a support for the frame to be carried by it. Such an instrument for such purpose I have devised; and the nature of this invention may be stated as follows, viz: the construction and use, in connection with a corn-planting machine, of a runner or shoe preceding a planting device, said runner or shoe being made with an up-

Statement of the case.

ward inclining edge, and the point thereof sufficiently high or raised that it will climb up and over, or cut or break through intervening obstacles without materially forcing the earth in a lateral direction at its front part, but widening towards its rear end, so as to open out a gash or furrow, in which to deposit the seed, as will be explained.

The shoe or runner A is made thin enough to easily penetrate the ground at its lower edge, and has an upward inclining edge, *p*, which rises high enough to climb over or break or cut through any ordinary intervening obstacle, such as clods, stalks or sod. It is thin enough so as not to be required to force the earth materially in a lateral direction, and keeps bright and smooth. It widens out gradually toward its rear end, so as to open a gash or furrow for the seed to drop into. I prefer to make the seed duct or tube *r* in the rear of the shoe or runner itself, so that the runner will be certain to hold open the furrow it makes until the seeds are dropped into it. The seed-duct *r* should at least follow the furrow-opener close enough to prevent the earth from running into and filling the gash or furrow before the seeds are deposited in it. A runner or shoe thus made causes but little friction in passing through the earth or soil, and as it is thin and smooth the muck does not cling to it and choke it up, as it would do were it of a wedge form with a vertical edge and thick rear, which must force the earth laterally to a great extent. The manner of connecting such shoes or runners with a seeding-machine is fully shown by the drawings. Their length must be sufficient to support the frame that is to be carried by them without being forced too deep into the soil, as would be the case with a sword-shaped cutter.

Having thus fully described the nature and object of my invention, what I claim under this patent is—

The construction of a shoe or runner for seed-planting machines with an upward inclining edge, and its point sufficiently high or raised as that it will climb up and over or cut or break through intervening obstacles without mate-

Statement of the case.

rially forcing the earth laterally at its front part, and widening toward its rear end, so as to open out a gash or furrow, in which the seed to be planted may be deposited, and long enough to furnish a support to the frame-work, substantially as described.

GEO. W. BROWN.

Witnesses :

A. B. STOUGHTON,
E. COHEN.

GEORGE W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 9,893, dated February 2, 1853 ; Reissue No. 526, dated February 16, 1858 ; Reissue No. 1,038, dated September 11, 1860.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful Improvements in Seed-Planters ; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or “machine dropping,” as it is termed. Fig. 2 represents a side elevation of the same. Fig. 3 represents the same machine arranged for hand-dropping. Fig. 4 represents a side elevation, and Fig. 5 a top plan of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the sev-

* The drawings of this reissue are identical with those of Reissue No. 1,038. p. 5 *ante*.

Statement of the case.

eral figures, denote corresponding parts of the machine in all the drawings.

In a seed-planting machine that is composed, mainly, of frame-work, and that is supported by and carried on not less than two runners and not less than two wheels, it is important that there should be a joint somewhere between the supporting points of the machine upon the ground for several reasons, and among them I mention the following, viz: that one part of the machine may be raised, lowered, adjusted, or supported on the other part of the machine, for defining the depth of planting, for passing over intervening obstacles, and for turning the machine around at the end of the rows or furrows.

The nature of this part of my invention consists in combining with a seed-planting machine constructed, principally, of frame-work, and with not less than two runners and two wheels, a hinged joint between the point of the tongue and the rear part of the machine, (or between what I term its "ground-supports,") so that one part may, by means of said hinge-joint, be raised, lowered, adjusted, or supported on the other part, for purposes herein mentioned, meaning by "one part" and the "other part" the part in advance and the part in rear of said hinge-joint.

To enable others skilled in the art to make and use this invention, I will proceed to describe the same with reference to the drawings.

A A represent a pair of runners or shoes, properly braced apart by cross-pieces B C D in any manner that will make them sufficiently rigid, and at a distance from each other equal to that between the rows or hills of corn or other seeds to be planted.

E is a tongue, united to the cross-pieces in any of the usual modes, so as to be midway between the pair of runners, to make a center draft. To this tongue, which may be said to constitute a part of the frame of the machine, the double-trees F, to which the team is hitched, is fastened. The seed-hoppers G G may be secured to this frame

Statement of the case.

immediately over the rear of the runners. The seed slides or valves *a*, that allow the grains in measured quantities to pass out of these hoppers and into the gash or furrow prepared for them by the runners, may be connected together by a bar, *b*, to which a lever, *c*, or its equivalent, is attached, so that the attendant, from his seat or stand *H*, may readily see the previously-made marks in the ground and operate the lever *c* to make the droppings conform thereto.

To the side-pieces, *I*, of the frame are connected two bars or levers, *J J*, (one on each side), by a pivot pin or hinge-joint at *d* at their front ends, and their rear ends supported on the journals of the rollers or wheels *K*, said journals acting as the fulcra of said levers *J*. To these journals may also be connected the stirrup-straps *e*, to which the pieces or levers *L L* are attached, the rear ends of the pieces *L* being connected by a cross-bar, *M*, which the driver or attendant may seize, and by raising it up or pressing it down correspondingly lower or raise the pieces *I*, and through them the runners *A*, by means of the fulcra or supports on the wheels *K* and the hinged connections. The pieces *L* extend forward of the braces or stirrups *e*, and have a yielding or hinged connection with the cross-piece *D* by a bolt and slot at *f*, or otherwise, so that the rollers or wheels may rise and fall in passing over the usual inequalities of the ground without disturbing the runners or shoes. This constitutes, mainly, the frame-work, which is simple, cheap, strong, and efficient, and possessing the property of allowing that part in front of the joint and that part in rear of it to accommodate themselves independently of each other to the natural roughness of the ground, while at the same time the operator, by means of the levers *L L* and their connections, can raise up, lower, carry, support, or adjust one of the frames upon the other at pleasure, as follows: The hinge-joint at *d* admits of the runners *A* being raised up out of the ground to pass any obstacle, but particularly facilitates the turning around of the machine at the ends of the furrows, for unless then raised up it would

Statement of the case.

strain the machine very much, as the heels of the runners are sunk several inches in the ground, and offer considerable resistance in turning. In thus raising up the seeding part of the machine or the runners the tongue E, the point of which is attached to the necks of the horses, is one fixed point, and the wheels K are the other fixed or supporting points, so that by using the lever M the shoes are raised up and suspended, if necessary, on these fixed points. It is immaterial whereabouts between these fixed or bearing points the hinge-joint is located, so that the runners are suspended, carried, or controlled by the point of the tongue and the wheels K through the hinge-joint and the lever connections between them.

Having thus fully described the nature and object of my invention, what I claim under this patent is—

In combination with a seed-planting machine, constructed, principally, of frame-work with not less than two runners and not less than two wheels, a hinged joint between the point of the tongue and the rear part of the machine, so that one part of the frame-work may be raised, lowered, adjusted, or supported on the other part, substantially as described.

Witnesses :

GEO. W. BROWN.

A. B. STOUGHTON,
E. COHEN.

GEORGE W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 9,893, dated February 2, 1853; Reissue No. 526, dated February 1, 1858; Reissue No. 1,039, dated September 11, 1860.

DIVISION D.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in

* The drawings in this reissue are substantially identical with those in No. 1,036, p. 5 *ante*.

Statement of the case.

the county of Knox and State of Illinois, have invented certain new and useful Improvements in Seed-Planters, and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or “machine dropping,” as it is termed. Fig. 2 represents a side elevation of the same. Fig. 3 represents the same machine arranged for hand-dropping. Fig. 4 represents a side elevation, and Fig. 5 a top plan, of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

It has been customary in seed-planting machines in which the seed-slides were operated automatically from some of the moving parts of the machine to mount the driver or conductor upon the machine; and it has also been customary to have the man who operates the seed-slides (when operated by hand) walk along behind or with the machine. I of course lay no claim to these things. I have discovered, however, that to mount the operator of a hand-planting machine upon the machine itself, where he can see the previously-made marks upon the ground and work his seed-slides so as to drop the charge or charges of seed in exact conformity thereto, not only relieves him of much of his onerous duty, but enables him to do better work and plant with more regularity, regular planting—that is, planting in straight rows or hills—making the cultivation of the young plants by machines much more certain and easy, and without throwing out or covering up such plants as would be outside of a regular line.

The nature of this part of my invention consists in so constructing a seed-planting machine, wherein the seed-dropping mechanism is operated by hand, in contradistinc-

Statement of the case.

tion from "mechanical or machine dropping," the so mounting of the operator upon said machine, as that he may readily and distinctly see the previously-made marks upon the ground, and operate the dropping mechanism to conform thereto ; and my invention further consists in combining with a seed-planting machine composed substantially of frame-work, and upon which the person who works the seed slides or valves by hand sits or stands, a lever or its equivalent by which the driver who manages the team may raise or lower that part of the frame that carries the operator of the seeding apparatus, and thus ease the machine in passing any intervening obstacles or in turning it around.

To enable others skilled in the art to make and use this invention, I will proceed to describe the same with reference to the drawings.

H represents a seat or stand which is occupied by the person who works the seed slides or valves. This seat is supported upon the frame-work of the machine, and is so placed that the occupant of it can readily see the seed-dropping mechanism, as also the previously-made marks upon the ground, which guide him in his operations. The operator holds in his hand a lever, c, which is connected with the seed slides or valves, and when he sees that the hoppers or seed-ducts are in the line of the previously-made marks or rows he moves his lever and causes a charge of seed to fall from the hopper or tubes, into the furrow or gash made by the furrow-opener.

I found my invention upon the assumption that corn upon mucky or prairie soils cannot be planted with regularity by machinery—that is, dropped automatically—for the slipping of the wheels, and the clogging and choking of such parts as are used in connection with corn-dropping machines, cause so much irregularity as to make the after cultivation of the plants by machinery almost, if not entirely, impossible without great loss, by throwing out or covering up the plants. I drop the seeds by hand

Statement of the case.

through proper mechanism; and that the operator may readily see his work, and not guess at it, I place him on the machine, where he rides; and I believe I am the first to mount the man who plants by hand on the machine that prepares the furrow, carries the seed, and covers it up, everything being mechanical except simply the dropping of the seed. I do everything that can be well and properly done by machinery by such mechanical devices as are herein shown. The planting, or, rather, dropping of the seed, which I allege cannot be properly done by machinery, I do by hand, and by the hand of a person who rides upon the machine.

In the drawings I have shown an entire seeding machine, to which the operator's seat or stand, and the lever by which he operates the seed-slides, are affixed. From these drawings and positions the whole thing will be readily understood, and the application of them made. In a machine, however, upon which the person who operates the seed slides rides, it is essential that some provision be made for easing the machine over intervening obstacles, and in turning around. For this purpose I connect with the frame-work B, C, D, etc., a second frame-work, J e L M. The seed-slide operator may ride on the first named frame-work, and the second attendant or driver, by pressing down upon the cross-bar, M, can raise up the other part, with the attendant upon it, and thus ease the runners. These two frame works, or, rather, parts of frame-work, constitute the main frame, which is supported by the runners, A, and wheels, K, and sometimes partially supported upon the tongue, which, being rigid on the frame, B C D, may itself be called a part of that frame, while it also does the duty of tongues ordinarily. The weight of the person who works the seed-slides is important at times to hold the furrow-openers to or in the ground, and when his weight becomes a bar or preventative to the machine's other duties—viz., of mounting over obstructions, or in turning around—I have provided a means, as above described, of counter-

Statement of the case.

acting his weight by throwing a portion of it upon the wheels and tongue and suspending the seeding mechanism to them, or, in other words, removing the weight from the runners and its frame, (except the tongue) and throwing it upon the wheels and tongue, thus putting the work, as well as the control of the machine, entirely under the supervision and direction of the attendants, and leaving nothing that requires judgment and skill to the machine itself.

Having thus fully described the nature and object of my invention, what I claim under this patent is—

1. In a seed-planting machine wherein the seed-dropping mechanism is operated by hand or by an attendant in contradistinction from mechanical dropping, the mounting of said attendant upon the machine in such position that he may readily see the previously-made marks upon the ground and operate the dropping mechanism to conform thereto, substantially as herein set forth.

2. In combination with a seed-planting machine composed substantially of frame work, and upon which the person who works the seed slides or valves sits or stands, a lever or its equivalent by which a driver or second attendant may raise or lower that part of the frame-work that carries the attendant and the seeding devices, and thus ease the machine in passing over intervening obstacles or in turning around, substantially as described.

GEO. W. BROWN.

Witnesses:

A. B. STOUGHTON,
E. COHEN.

Statement of the case.

GEO. W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 12,811, dated May 8, 1855; Reissue No. 508, dated November 10, 1857: Reissue No. 1,091, dated December 11, 1860.

DIVISION A.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Seed-Planters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete. Fig. 2 represents a top plan of the seed hoppers and valves and frame-work supporting them. Fig. 3 represents a vertical transverse section through the seed hoppers, valves, and runners or shoes, and showing a device for operating the valves, also representing parts of the frame for supporting them, as well as the marker. Fig. 4 represents a side elevation of one of the runners. Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

In the machine originally patented to me on the 2d day of February, 1853, and afterward reissued, many of the leading characteristics of the present invention may be found; but in my former invention I only mounted one person on the machine, where he could ride and better overlook his work, the other attendant walking upon the ground. In my present machine I mount both the seed

G. W. BROWN.

Corn-Planter.

No. 1,091.

Reissued Dec. 11, 1860

Fig. 5.

*Witness
A. Brown
John A. Brown*

1

*Inventor:
G. W. Brown
by atty. H. S. Thompson*

Statement of the case.

slide or valve operator and the driver on the machine, so that both can ride and without inconveniencing each other. This I find to be the most desirable, and is preferred by the farmers.

The nature of this invention consists, in connection with a seed-planting machine that is operated by hand, in the placing of both the driver and the person who operates the seed slides or valves upon the machine in such positions that each may attend to his particular duty without interfering with the duties of the other; and it further consists, in connection with a seed-planting machine that is operated by hand, and upon which the driver and the person who operates the seed-slides sit or stand, in the so locating of said seats or stands as that the weight of one of the persons may be used to counterbalance or overbalance the weight of the other, for the purpose of more readily raising or lowering the seeding apparatus.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A represent a pair of runners or shoes having their edges inclined upward, so as to mount up or climb over or break or cut through intervening obstacles to their free passage through or over the ground. These runners are made thin at front and gradually widen out toward their rear ends, so as to open a gash or furrow wide enough to receive the grains that are to be planted therein and without much lateral displacement of the soil or any tendency of the mucky or sticky soils to adhere to them, and thus clog up the machine and cause it to make rough or irregular openings for the seed. These runners are united by suitable cross-pieces to form a frame-work, upon which are mounted the seed-hoppers B B, and a seat or stand, C, for the person who works the seed slides or valves *a a* to occupy or ride upon.

D is the tongue, and E the double-trees, to which the team is hitched in the usual way.

Statement of the case.

The valves *a a* are united by a cross-bar, *b*, to which a lever, *c*, is attached, said lever being in convenient position for the operator to grasp and work from his seat or stand *C*. Instead of the grains dropping from the seed slides or valves *a a* in the hopper down into the gash or furrow at one single fall, there may be a second set of valves, *e e*, Fig. 3, extending down into the seed ducts or tubes *d d*, which catch the grains that drop from the hoppers and allow those just previously dropped and caught to fall into the furrow. This is more particularly advantageous when the hoppers set high up above the ground, as the machine will not advance so far over the ground during the time consumed in the falling of the grain, and consequently the operator can better gauge the dropping into the exact spot, and thus preserve straight rows for the after cultivation.

F F are a pair of supporting-wheels, and, for convenience, are also made to travel in the path of the runners, so as to press down the earth upon the planted seeds. Upon the journals or axles of these wheels is supported the rear portion of the frame-work *G* of the machine, and upon which rear portion of the frame-work the driver's seat *H* is placed. This seat extends back of the axle or centers of the wheels *F*, or so that the driver or occupant of the rear seat by moving himself or throwing his weight forward or backward may force the seeding apparatus into or raise it from the ground for planting deeper, or for raising to surmount any obstacle, or for turning the machine around at the end of the furrow or "through."

The side pieces, *I I*, connecting the front and after portions of the frame, may be united in front by rods or bolts *f*, so as to form a hinged connection and leave some play between said front and rear portions, and a lock, block, or stop, *h*, arranged, against which the levers *I I* catch or stop to prevent the rear of the frame from descending so low as to strike the ground or inconvenience the driver or occupant of the seat *H*. *g* are adjustable purchase-blocks on the inside levers, *I*, as seen at Fig. 5,

Statement of the case.

which take under the frame of the seeding apparatus, so as to define or adjust the extent to which said seeding apparatus may be raised or lowered. The pieces I I serve as levers by which the driver or occupant of the rear seat by his weight or his position, or both, can raise up or let or force down the seeding apparatus, shoes, or seed-ducts, as will be clearly understood by reference to the drawings. The driver or occupant of the rear seat, too, by changing the position of his person or weight can balance, counter-balance, or overbalance the weight of the person who sits or stands in front, thus controlling the machine, raising up or letting down, when necessary to do so, the seeding apparatus by simply moving his person or throwing his weight backward or forward, as the case may be.

The person who works the seed-slides may sit or stand facing the previously-made furrows or marks on the ground, which guide him in his operations, and, sighting by an indicator, K, moves his lever c when the indicator points over the previously-made mark, and thus successively drop the charges of grain in rows or straight lines, so as to be readily cultivated afterward.

It is obvious that so long as I have two seats on the machine it is immaterial upon which one the driver sits or upon which one the seed-slide operator sits, as they may change seats and still work and conduct the machine in the same way.

The tongue D is rigidly fixed to the front frame, and the rear frame being hinged to the front frame by the levers or side pieces, I I, the occupant of the seat H can by shifting his person or weight backward on his seat raise up the front frame, so that instead of the runners or shoes, which are its ordinary supports, carrying said front frame, it is suspended to the rear frame at one end and to the horses' necks at its front end, and thus carried, in which position the weight is on the wheels and the horses' necks. Thus the tongue, too, becomes a lever through the intervention of a hinged joint between its point and the carrying-wheels, by

Statement of the case.

which the management of the front frame is facilitated, and the entire operations of the machine put under the easy control of the person riding upon it.

Having thus fully described the nature and object of my invention, what I claim under this patent is—

1. In combination with a seed-planting machine that is operated by hand, the placing of both the driver and the person who operates the seed slides or valves upon the machine in such position as that each may attend to his particular duty without interfering with that of the other, substantially as described.

2. In combination with a seed-planting machine that is operated by hand, and upon which the driver and the person who works the seed slides or valves sit or stand, the so locating of said seats or stands as that the weight of one of the persons may be used to counterbalance or overbalance the weight of the other for the purpose of more readily raising or lowering the seeding apparatus, substantially as and for the purpose described.

GEO. W. BROWN.

Witnesses:

A. B. STOUGHTON,
E. COHEN.

GEO. W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 12,811, dated May 8, 1855; Reissue No. 508, dated November 10, 1857; Reissue No. 1,092, dated December 11, 1860.

DIVISION B.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in

*The drawings in this reissue are indetical with those of reissue No. 1,091. p. 22 *ante*.

Statement of the case.

the county of Knox and State of Illinois, have invented certain new and useful improvements in seed-planters ; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete. Fig. 2 represents a top plan of the seed hoppers and valves and the frame-work supporting them. Fig. 3 represents a vertical section taken transversely through the seed hoppers, valves, and runners or shoes, and showing the device for operating the valves, also representing parts of the frame-work for supporting them, as well as the marker. Fig. 4 represents a side elevation of one of the runners. Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

To give the operator or conductor of a seed-planting machine full control of the machine while he rides upon it involves the necessity of a peculiar arrangement of seat in relation to the axle, or the driving, supporting, or covering wheels in which the axle is supported, so that the seat may be used as a lever, the occupant of it simply shifting his person or his weight, and thus, making a fulcrum of the axle or the wheels that support it, may raise or lower the seeding apparatus or force it into the ground, as may be required. This is the object of this part of my invention ; and my invention consists, in connection with a seed-planting machine that has its seeding devices forward of the driver's position and forward of the axle, in the locating of the seat in such relation to the axle of the supporting-wheels as that the occupant of said seat may, by moving himself or throwing his weight forward or backward on the seat, and without leaving it, force the seeding ap-

Statement of the case.

paratus into or raise or lower it from the ground, as he may desire, or as the nature of the work may require.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A represent a pair of runners or shoes upon which the seed-hoppers B B are mounted, and which, together with other cross-pieces extending from shoe to shoe, form a frame to which the tongue D is united.

F F are a pair of wheels supported by journals or axles in the frame-pieces I I, etc., that are all united to a cross-piece, G, at the rear, and another cross-piece G, which is in, at, or near the line of the bearings or journals of the wheels F. These pieces form also a second frame, which is pivoted to the front frame at the points *f f*. The outer pieces I I pass over respectively a lock, block, or stop, *h*, on the front frame, and are so arranged as to prevent the rear of the frame from descending so low as to strike the ground or incommode the driver or occupant of the seat.

g g are adjustable purchase-blocks on the inside levers I I, as seen at Fig. 5, which take under the cross-bar J of the front frame, and define or adjust the extent to which said front frame may be raised or lowered. The pieces I I serve as levers by which the occupant of the seat H, by his weight or his position, or both, can raise up or let or force down the seeding apparatus, shoes, or seed-ducts, as may be required for running the machine around, or for deeper or less deep planting. The seat H is secured to the frame-pieces G G, and it extends back of the line of the axles of the wheels or centers of the wheels, so that the occupant of the seat may use it as a lever to raise up the front framework and seeding devices, as above mentioned, by shifting his weight or moving his person thereon. Should the axle extend clear across from wheel to wheel, it would then occupy the place of the front cross-piece G, and the axle could then become the support of the seat H.

The seeding apparatus herein represented operates as

Statement of the case.

follows: The shoes *A* form a gash or furrow in the ground, and the seed-ducts are close in rear of them. The valves *a a* are united by a cross-bar, *b*, to which a lever, *c*, is attached, said lever being in convenient position for the operator to grasp and move from his seat on the machine. Instead of the grains dropping directly from the seed-slides or valves *a a* into the hopper in the gash or furrow, or at one fall, there may be a second set of valves, *e e*, Fig. 3, extending down into the seed-ducts *d d*, which catch the grains that drop from the hoppers and allow those just previously dropped and caught by them to fall into the furrows, the object of this being to let the seed have as little space to drop from as possible, because while they are falling the machine is moving along over the field, and without the lower valves would dribble the grains along, instead of leaving them in straight rows or hills, so as to be easily cultivated afterward.

K is an indicator or marker which directs the operator in moving the lever *c*. As soon as the marker points over the previously planted hill or furrow the lever is moved, which drops the charge of seeds in exact line with the others previously dropped, and thus perfect uniformity and directness of rows or hills are preserved.

Having thus fully described the nature of this part of my invention, what I claim under this patent is—

In combination with a seed-planting machine operated by hand, and having its seeding devices forward of the center of the wheels and forward of the driver's seat, and a hinged connection, the locating of the seat in such relation to a line drawn through the centers of the wheels or ground-supports as that the occupant of said seat may, by moving himself or throwing his weight forward or backward on his seat without the necessity of rising, walking, or standing over or near the seeding devices, force the seeding apparatus into or raise it from the ground, substantially as described.

Witnesses:

GEO. W. BROWN.

A. B. STOUGHTON,

E. COHEN.

Statement of the case.

GEO. W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 12,811, dated May 8, 1855 ; Reissue No. 508, dated November 10, 1857 ; Reissue No. 1,093, dated December 11, 1860.

DIVISION C.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful improvements in seed-planters ; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete. Fig. 2 represents a top plan of the seed hoppers and valves and frame-work supporting them. Fig. 3 represents a vertical transverse section through the seed hoppers, valves, and runners or shoes, and showing a device for operating the valves, also representing parts of the frame for supporting them, as well as the marker. Fig. 4 represents a side elevation of one of the runners. Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

When the operator of a seeding-machine walks upon the ground alongside of or behind the machine it is very easy for him, by means of a lever, to raise or hold up certain portions of the machine, he himself being one of the points of support ; but when the operator is mounted upon the

*The drawings of this Reissue are identical with those of Reissue No. 1,091. p. 22 *ante*.

Statement of the case.

machine, then the support afforded by his person is lost, and other means must be resorted to effect this object. To accomplish this object with the operator or attendant mounted upon the machine is the subject of this patent; and the nature of my invention consists in so constructing a seed-planting machine that has a hinged joint between its fixed points of support, and that has its seeding devices arranged between said fixed points also, as that the seeding devices may be raised up out of the ground by the conductor riding on the machine, and carried by or on the tongue or horses' necks and by the supporting or carrying wheels jointly.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A represent a pair of runner-shaped shoes properly braced to each other, so as to form a frame-work for supporting the tongue D and double-trees E, to which the team is hitched, the seed-hoppers B B, the slides *a a*, cross-bar *b*, that connects them together, and the lever *c* for operating said slides. These runners have an upward-inclined edge, so as to climb up and over or cut or break through intervening obstructions in their path. They are, moreover, thin in front and gradually widening toward their rear ends, so as to slip easily and with little friction through the ground and not become clogged with earth, having very little earth to move laterally out of their path. They open a gash or furrow, into which the seed are dropped at stated intervals from the hoppers and in measured quantities. They hold open the gash or furrow until the seed are completely in it; and for this purpose I prefer to have seed-ducts *d* in the runners, and closed, so that they cannot clog up, especially in backing or in turning around.

F F are a pair of supporting-wheels, and, as a matter of economy, so arranged with regard to the seeding devices as to become covering or pressing wheels for the planted grain.

Statement of the case.

I I are longitudinal pieces in which the journals of the axles of the wheels (or a single axle may be used, if preferred) are supported.

G G are cross-pieces extending from and fastened to the side pieces to form a frame-work upon which the conductor of the machine is placed in a seat, H, and where he rides and manages the machine. This seat is so placed that a portion of it shall be behind the axle or centers of the wheels F F, to enable the occupant of said seat to move forward or backward thereon, or so that by throwing his weight forward or backward he may lower or raise up the seeding devices, or that part of the frame-work or machine to which they are connected, as follows: The front ends of the longitudinal pieces I I are pivoted to the front part of the frame-work by bolts *f* or otherwise, to form a joint on which they can play, and on the inside pieces, I I, are fastened a pair of purchase-blocks, *g g*, which take under the cross-piece J, Fig. 2, of the front frame-work, and thus define the extent of motion of one frame on the other. These purchase-blocks are made adjustable for the purpose of regulating this extent of motion of one frame on the other.

h h are locks, blocks, or stops on the frame of the seeding apparatus, which prevent the rear part, G, of the frame from descending so low as to strike the ground or incommode or inconvenience the occupant of the seat H.

C is a seat or location where a person may sit or stand and operate the seed-slides.

K is an indicator or pointer extending downward so that its point will move over or near to the previously-made marks or furrows. The occupant of the seat or stand C faces the marker or indicator K, with the lever *c* in his hand, and whenever the indicator points to or over the previously-made marks he moves his lever, and through it the seeds slides or valves *a e*, and the measured or designated charges of grain are dropped into and through the seed tube or duct into the furrow. The slide or valve *e*, arranged in the seed duct or tube, is pivoted near its center, and is in an almost

Statement of the case.

vertical position, and opens and closes both by a single operation of the lever *c*, thus saving the operator one-half of the labor required to work a slide or valve that must have two motions of the lever to open and close it, which is of great importance to him in his many duties.

There are two points in this machine that have unvarying positions or heights with regard to the ground—viz., the point of the tongue, as its height is defined by horses' necks, to which it is attached, and they standing of course upon the ground, and the journals or axle of the covering or supporting wheels *F F* as they roll on the ground, and between these fixed points the hinged connection between the front and rear part of the machine is made, so as to admit of raising or lowering the seeding devices.

Having thus fully described the nature and object of this part of my invention, what I claim under this patent is—

In combination with a seed-planting machine that has a hinged or yielding joint between its fixed points of support and with its seeding devices between said points, the so connecting of the parts between said fixed points of support as that that portion of the machine carrying the seeding devices may be raised up out of the ground by the attendant riding on the machine, and be carried by the tongue or horses' necks and the supporting wheels, substantially as and for the purpose described.

· GEO. W. BROWN.

Witnesses :

A. B. STOUGHTON,
E. COHEN.

Statement of the case.

GEO. W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 12,811, dated May 8, 1855; Reissue No. 508, dated November 10, 1857; Reissue No. 1,094, dated December 11, 1860.

DIVISION D.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Seed-Planters ; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete. Fig. 2 represents a top plan of the seed hoppers and valves and frame work supporting them ; Fig. 3, a vertical transverse section through the seed hoppers, valves, and runners or shoes, and showing a device for operating the valves, also representing parts of the frame for supporting them, as well as the marker. Fig. 4 represents a side elevation of one of the runners. Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

In a seed-planting machine upon which the operator or attendant rides, and which has a hinged or yielding joint between the point of the tongue and the wheels which support it upon the ground at a fixed height, and the seeding portion of which can be raised up, let down, or forced into

* The drawings in this reissue are identical with those of Reissue No. 1,091. p. 22 *ante*.

Statement of the case.

the ground by the person riding on the machine, it is very important that some limit should be given to the necessary motion of one part upon the other to prevent the rear part of the frame from descending so low as to cause it to strike the ground or inconvenience the occupant of the seat thereon. To accomplish this is the object of this part of my invention; and my invention consists in combining with a seed-planting machine that is so made as that the forward part thereof can be raised up onto the supporting points, to be carried thereby, a lock, block, or stop, which prevents the rear of the frame from descending so low as to strike the ground and inconvenience the occupant of the seat upon said rear part.

To enable others skilled in the art to make and use this part of my invention, I will proceed to describe the same with reference to the drawings.

The front and rear portions of the machine are made up of two separate frames, as it were, the front part containing and carrying the hoppers and seeding devices, and the rear portion having a seat, H, thereon and carried upon a pair of wheels, F F. The pieces, I I, of the rear frame or part extend over onto the front part, and are pivoted or hinged thereto, as shown at *ff*, etc., so that one part may move upon the other part of said frame. I have shown four of these connecting pieces, I, that extend from the rear to the front part of the frame-work. The two outer pieces pass in close proximity to the locks, blocks, or stops, *h h*, Fig. 2, that are fastened on the front part of the machine, and the two inner pieces may pass under the cross-piece, J, of the front part, and upon these inner pieces may be placed wedges or their equivalents, *g*, Figs. 2, 5, where they come underneath the cross-piece, J, said wedges, if desirable, being adjustable, to give a greater or less purchase or extent of motion of one frame upon the other. Now, suppose the attendant to be upon the seat, H, and that he desires to raise up the seeding devices or the front part of the frame, assuming that the point of the pole or

Statement of the case.

tongue, D, is connected to the horses' necks and therefore fixed, he may throw or move his weight or person backward, which causes the inner levers, I I, to raise up the front part of the machine until the stops, *h h*, come against the outer pieces, I I, where it is stopped and held, and so long as the occupant of the seat chooses he can hold and carry it there by means of the raising levers, the weight of said front part being supported upon the necks of the horses and upon the wheels, F. Thus the occupant of the seat, H, by means of the hinged or yielding connection between the frames and the lever connection between them also, can raise or hold up the front part of the machine, or let it down, or force it into the ground, as he may desire, and in doing so the rear part of the machine never drops so low as to strike the ground, the stops, *h*, preventing that casualty, nor so low as to inconvenience the occupant of the seat, H. The point of the tongue, D, being connected to the horses' necks, has practically a fixed vertical position above the ground. The rear part of the machine, being supported in the wheels, F, which are on the ground, has also a fixed vertical position over the center of the wheels, and between these fixed positions the hinged or jointed connection must be made, so that the occupant of the seat, through the lever-connection between said front and rear portions, can suspend the front part of the machine upon the necks of the team and upon the wheels, and there carry it so long as he may desire, and particularly when he is turning his machine around at the ends of the furrows.

Having thus fully described the nature and object of this part of my invention, what I claim under this patent is—

In combination with a seed-planting machine so made as that the forward part of the machine can be raised up onto the supporting-wheels and there carried, a lock, block, or stop, *h*, which prevents the rear part of the frame from descending so low as to strike the ground or inconvenience

Statement of the case.

the occupant of the seat upon said rear portion of the frame, substantially as and for the purpose described.

GEO. W. BROWN.

Witnesses :

A. B. STOUGHTON,
E. COHEN.

GEORGE W. BROWN, OF GALESBURG, ILLINOIS.

IMPROVEMENT IN SEED-PLANTERS.*

Specification forming part of Letters Patent No. 12,811, dated May 8, 1855 ; Reissue No. 508, dated November 10, 1857 ; Reissue No. 1,095, dated December 11, 1860.

DIVISION E.

To all whom it may concern :

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful Improvements in Seed-Planters ; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete. Fig. 2 represents a top plan of the seed-hoppers and valves and frame-work supporting them. Fig. 3 is a vertical transverse section through the seed-hoppers, valve, and runners or shoes, and showing a device for operating the valves, also representing parts of the frame for supporting them, as well as the marker. Fig. 4 represents a side elevation of one of the runners. Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

* The drawings of this reissue are identical with Reissue No. 1,091. p. 22 ante.

Statement of the case.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

In a seed-planting machine operated by hand it is of course very desirable to relieve the operator of all the manual labor possible, inasmuch as his duties are of the most fatiguing character; and among the most arduous of his duties is that of operating the seed slides or valves, being obliged to extend his arm back and forth constantly and rapidly for days at a time. Where a single valve or slide is used it is easy enough to do the dropping, as every forward and every backward motion of the arm or foot opens and closes the valve both; but the difficulty with the single valve is this, that the grain, in dropping from the hopper to the bottom of the furrow, has so far to fall that the forward motion of the machine dribbles it along and makes irregular planting. To avoid this a valve has been placed down near the bottom or in the seed-tube, which catches the grain from the hopper and drops it from that low point into the furrow; but in the valves as heretofore used in the seed-tubes it required either two motions of the arm to open and close them—viz., one to open it and another to close it—so that two motions of the arm were required for every charge of grain dropped, or else the quantity of seed dropped from the hopper had no measured relation in time or quantity to that dropped from the tube.

The nature of my invention consists in so combining a lever with the slide or valve in the hopper, and with a valve in the seed tube, as that they may be both opened and closed by a half motion or single motion of the lever, operated by the attendant riding on the machine:

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

B B represent a pair of hoppers for containing the seed to be planted.

a a are the valves in said hoppers, these valves opening

Statement of the case.

and closing the exit into the seed-tubes at every single motion of the lever *c*, to which they are connected by the bar *b*.

In the seeding-tubes *d d* are hung valves *e e*, which vibrate on a center, and they are connected to the bar or rod *b*, which is operated by the lever *c*, so that a single motion or half-motion of said lever not only opens but also closes the seed-tube. Assume the valves to be in the positions shown in Fig. 3. Now move the lever *c* to the right of said figure, and this single operation opens the valves to let the charge of grain previously caught and retained by them drop to the furrow, and at the same time instantly closes it against the opposite side to catch the next charge, so that a half-motion of the lever both opens and closes the valves; and this saves the operator just one-half of his labor, which is a very material saving in a day's labor. If the valve or slide in the seed-tube required two motions to open and close it, then the valve in the hoppers would also require two motions, else the latter would furnish more grain to the former than would be a proper charge for each hill. I do not of course lay any claim to the opening and closing of a pair of valves by a double or two motions. It is to avoid this double labor that my invention aims at, and its importance will be duly appreciated when it is considered that one-half of the labor of the attendant is saved by my invention.

Having thus fully described my invention, what I claim under this patent is—

So combining with a lever, by which both may be operated, a valve or slide in the seed-hopper and a valve in the seed-tube as that a half-motion of the lever by the operator riding on the machine, by which they are operated, shall both open and close the seed-passages at regular periods and pass measured quantities only, substantially as described.

Witnesses :

GEO. W. BROWN.

A. B. STOUGHTON,
E. COHEN.

Statement of the case.

HENRY TODD, OXFORD, NEW HAMPSHIRE.

Letters Patent No. 3381, dated December 15, 1843.

The schedule referred to in these Letters Patent and making part
of the same.

To all persons to whom these presents shall come :

Be it known that I, Henry Todd, of Oxford, in the county of Grafton, in the State of New Hampshire, have invented certain new and useful Improvements in Machinery for Drilling or Planting Corn and Seeds in general, of which the following description and accompanying drawings, taken together, constitute a full and exact specification.

Fig. 1 of the above mentioned drawings represents a top view of my improved planting machine. Fig. 2 is a side elevation. Fig. 3 is a bottom view, and Fig. 4 is a longitudinal, vertical and central section of the same.

My first improvement consists in the peculiar mechanism for receiving the seeds and discharging them into the furrow made by the furrow opener or plough, and for this purpose a chamber or hopper A, Fig. 4, is provided for the reception of the seed to be planted. This chamber communicates by a passage or opening B (in its lower part), with a supplying chamber C, arranged in rear thereof as seen in the drawings. Within this latter chamber an endless belt D, having a series of small cups or receptacles, *a*, fixed or attached on its exterior surface, is arranged so as to travel around upon horizontal cylinders or rollers E F, the lower roller F being revolved by means of a crossed belt G, (See Figs. 1 and 2), running upon a cone H of grooved pulleys fixed upon one extremity of the axis of the roller F, the said belt leading from another but reversed cone I, of pulleys applied, upon the shaft or axis of the furrow roller K, to be hereinafter described.

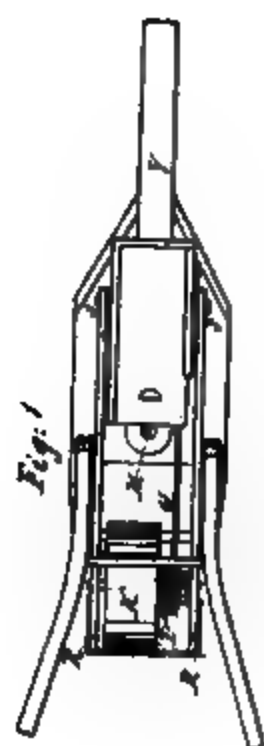
As the machine is moved upon the ground, the endless belt is put in motion and the seeds in the hopper by means of the jarring and shaking of the machine are caused to

H. Todd.

Seed Planter

Nº 3,381.

Patented Dec. 16, 1843.



Statement of the case.

pass as wanted into the supplying chamber, where they will stand generally, at a lower level than in the hopper, and at such level or altitude in the said supplying chamber as required for the action of the belt of cups. The revolution of the belt causes the cups to be successively filled with seed as they pass under the roller F, and to be discharged as they pass over the roller E, the seed being thrown into the discharging passage L, down which they fall by the action of gravity, and in their fall strike upon the edge or upper surface of a belt M, (which extends a short distance into the passage L, as seen in Fig. 4), and thus by the noise created thereby, give information of the dropping of the seed. The discharging passage is formed through the angular surface or clearing board N, on which the above mentioned apparatus is sustained; and the said discharging passage terminates just in the rear of a furrow opener or small plough O, secured to the under side of the clearing board N, as seen in Figs. 2, 3, 4. The board N has its front end formed angular, as seen in Figs. 1, 2 and 4, its angular faces or sides being shod or protected by bars or plates of iron suitably applied thereto. At a proper distance in rear of the furrow plough, two coverers P, Q, are applied to the lower side of the surface board N, their office being to return into the furrow the earth thrown up by the plough. The roller K, which compresses or rolls down the soil is situated in rear of the coverers and the surface board N. It is sustained by arms R R, which at their front ends are jointed to supports S S, so as readily to move up and down in a vertical direction and thus permit the roller K to always rest upon the surface of the ground.

Handles T T are applied to the rear of the surface board and extend above the same, as seen in the drawings. A drag-beam U is connected by the front end of the surface board, the horse or animal, by the power of which the machine is moved over the surface of the ground, being connected by a chain or other suitable means, to the front end of the drag-beam.

Argument of counsel.

The flat, angular surface board N clears the surface of the track of all obstructions to the correct action of the furrow opener and coverers. Besides it gauges the depth to which the soil is to be penetrated, and is of advantage in many other respects.

I claim the combination with the endless belt and discharging passage of the belt upon which the seeds are thrown, in the manner and for the purposes described.

I also claim the combination of the flat, angular clearing and surface board with the angular furrow plough and coverers arranged upon its lower surface, the object of the said clearing board being to remove any impediment to the correct action of the furrow opener and coverers, and regulate the depth to which the seed are to be planted.

In testimony that the above is a correct specification of my said invention, I have hereto set my signature this twenty-third day of September, of the year eighteen hundred and forty-three.

HENRY TODD.

Witnesses :

MARY M. WILCOX,
LEONARD WILCOX.

Mr. Geo. Harding, for appellant :

I. In determining the validity of a reissued patent, the only question left open for the court is, whether, on a comparison of the reissued patent with the original specification, drawing and model, the subject-matter of the reissued claims, can be found therein ; if so, the reissued patent is valid.

Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].; Eureka Co. v. Bailey Co., 11 Wall. 488 [8 Am. & Eng. 280]; Parham v. Button-hole Co. 4 Fish. 468.

II. The granting of a reissued patent in separate divisions instead of in one patent, is a matter in the discretion of the Commissioner of Patents.

Bennett v. Fowler, 8 Wall. 445 [8 Am. & Eng. 124];

Argument of counsel.

Penn. Salt Co. v. Gugenheim, 3 Fish. 423; Seymour v. Osborne (*supra*); Edwards v. Darby, 12 Wheat. 210.

III. As to the legality of claims in the forms contained in reissues 1,039, 1,091 and 1,092, and as to the construction of the claims of the reissues generally.

See, Seymour v. Osborne (*supra*); Roberts v. Dickey, 4 Fish. 532; Seymour v. McCormick, 19 How. 96 [6 Am. & Eng. 282]; McCormick v. Talcott, 20 How. 402 [6 Am. & Eng. 410].

IV. As to what is required in a prior invention to defeat a patent, and as to prior public use, see, Whiteley v. Swayne, 7 Wall. 685 [8 Am. & Eng. 70]; Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24]; Seymour v. Osborne, 11 Wall. 552 [8 Am. & Eng. 290]; Washburn v. Gould, 3 Story, 122; Howe v. Underwood, 1 Fish. 160; Cahoon v. Ring, 1 Cliff. 612; Union Sugar Ref. Co. v. Mathiessen, 2 Cliff. 304; Cox v. Griggs, 2 Fish. 177; Johnson v. Root, 2 Cliff. 123; Gayler v. Wilder, 10 How. 498 [5 Am. & Eng. 188]; Parkhurst v. Kinsman, 1 Blatchf. 488; Lewis v. Marling, 1 Web. Pat. Cas. 493 [1 Am. & Eng. 417]; Sayles v. R. R. Co., 4 Fish. 584; Roberts v. Dickey, 4 Fish. 532.

V. As to the certainty required in establishing the nature of an alleged prior invention, and in fixing its date, see, Wood v. Cleveland Roll. Mill Co., 4 Fish. 559; Parham v. Button-hole Co., 4 Fish. 468; Hayden v. Suffolk Mfg., 4 Fish. 98; Tompkins v. Gage, 2 Fish. 580; Goodyear v. Day, 2 Wall. Jr. 299; Cox v. Griggs, 2 Fish. 177; Woodman v. Stimpson, 3 Fish. 110.

VI. As to modifications of prior devices to convert them into the patented improvement, see Wood v. Cleveland Roll. Mill Co. (*supra*).

VII. As to what constitutes infringement and the doctrine of equivalents as applicable thereto, see, Seymour v. Osborne, 11 Wall. 516 [8 Am. Eng. 290]; Union Sugar Ref. Co. v. Mathiessen, 2 Cliff. 304, S. C. 2 Fish. 600.

VIII. As to the effect to be given to the patents of ap-

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pellees of date subsequent to the date of appellant's patent, see, *Blanchard v. Putnam*, 8 Wall. 425 [8 Am. & Eng. 107].

Messrs. S. S. Fisher, and Gookins & Roberts, for appellees.

(This argument was confined so much to facts as not to be of great general practical importance.)

Mr. Justice BRADLEY delivered the opinion of the court:

These cases arise upon separate bills in equity, filed in the court below by the appellant against George J. Bergen and Frederick P. Sisson, in the one case, and James Selby and others, in the other case, charging them respectively with infringement of certain letters patent granted to the complainant for improvements in corn-planting machines, being reissues of previous patents, and praying for an account of profits, for injunctions and for general relief. The defendant in the first named case filed an answer and two amended answers, setting up in general that the complainant was not the original and first inventor of the improvements patented to him, but that the same were previously known and used by various other persons named in the answers; and that the reissued patents of complainant were fraudulently obtained; and they denied that they infringed the complainant's patents. The pleadings in the other case were substantially the same. Much testimony having been taken, the causes were heard together before the Circuit Court, and the complainant's bills were severally dismissed. Appeals are from those decrees. Bergen, one of the original defendants in the first case, having died, the cause was revived in the name of his executor, who, with the other defendant, Sisson, are the now appellees in that case. The principal question in those causes is, whether the appellant was the original and first inventor of the improvements claimed by and patented to him, or whether he was anticipated therein by other persons named in the answers of the defendants.

Omitted in Wall.

Opinion of the court.

As set forth in the bill, the first patent obtained by the complainant for one portion of his alleged invention and improvement was granted to him on the 2d day of August, but antedated the 2d day of February, 1853. This patent was surrendered on the 16th day of February, 1858, and a new patent was issued in lieu thereof upon a corrected specification. This reissued patent was also surrendered on the 11th day of September, 1860, and in lieu thereof, five new patents were issued upon five several corrected specifications, which new patents were numbered respectively reissues 1,036, 1,037, 1,038, 1,039, 1,040, each one being for a distinct and separate part of the original invention alleged to have been made by the complainant.

On the 8th day of May, 1855, a patent was granted to the complainant for certain improvements on his corn-planter, which patent was, on the 10th day of November, 1857, surrendered, and a new patent was issued in lieu thereof on a corrected specification. This last patent was also surrendered on the 11th day of December, 1860, and five new patents were issued in lieu thereof, on five amended specifications, each being for a distinct and separate part of the improvements intended to be secured by the patent of 1855. The last mentioned patents were respectively numbered, reissues 1,091, 1,092, 1,093, 1,094 and 1,095. Copies of all the reissued patents of both series were annexed to the bill. Upon the taking of proofs in the cause, copies of the two original patents and of the first reissues thereof as well as the reissued patents on which the bill was founded, were put in evidence together with full and detailed drawings and models of the complainant's original and improved machines.

The defendants in their answer and the several amendments thereof, referred to many machines, patents and applications for patents, which, as they alleged, embodied all the improvements of the complainant's machine and antedated the same. These will be more particularly referred to hereafter.

Omitted in Wall.

Opinion of the court.

Without stopping here to inquire into the distinctive features of the several reissued patents granted to the complainant in 1860, whether of the first or second class, we will endeavor to describe his corn-planting machine as actually exhibited in the original patents, drawings and models thereof. Such a description is necessary in order to a correct understanding of the various patents and of the points and questions which have been raised thereon.

The original machine, the patent for which was granted to the complainant on the 2d day of August, 1853, and the application for which patent was dated the 27th of September, 1852, consisted of the following parts:

1. A frame work supported on two runners, the latter being used for cutting a gash or furrow in the earth to receive the seed; each runner having a cleft at the rear end for allowing the seed to drop to the ground, and furnished with a hopper above containing oscillating horizontal valves, for dropping the seed at proper intervals into the gash or furrow, through a tube in the heel of the runner.

2. Another frame work following the first and supported on two wheels or rollers, to follow the runners and press the earth down upon the seed in the gash or furrow.

3. A free or jointed connection between the two frames allowing them to rise and fall independently of each other, in going over inequalities of surface.

4. A system of levers resting on the axle of the wheels under the rear frame, and so applied to the forward frame as to enable the driver to raise the runners out of the ground for turning about or for any other purpose with an arrangement for regulating the depth of the furrow or gash made by the runner.

5. A connecting rod between the seed-valves in the two-hoppers, one end attached to each, with a lever to move it backward and forward, by the hand of the dropper sitting crosswise on the frame, so that he may by such movement drop the seed from both hoppers at the same time, at the intersection of the cross lines marked on the field.

Omitted in Wall.

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The machine is described with substantially these parts in all the specifications and drawings attached to all the patents.

The improved machine as patented in 1855, had two additional features or improvements.

1. A valve, called "a flipper-valve," in each seed dropping tube, which valve is composed of a long, slender slip of metal attached to a pivot in the middle, so that when the top is moved to one side of the tube the bottom moves to the other side. By one movement the seed drops into one side and is detained near the bottom till the next movement, when it is dropped on the ground and seed is admitted on the other side. The effect of this arrangement is, that the seed is near the bottom of the furrow when it is dropped, so that it is immediately deposited in line with the check row. And the peculiarity of the apparatus is such that it requires but one movement of the levers above to drop for a single hill.

2. Another improvement was a high, long seat for the driver, on the rear frame, located above the wheels lengthwise of the machine, so that by moving backward or forward on the seat, his weight will raise or depress the runners.

The only claims allowed by the Patent Office upon the original application in 1853, were:

1. "The oscillating horizontal wheels or distributors, (namely: the valves before referred to), in the bottoms of the hoppers, having slots and holes of various sizes in combination with the stationary caps and pins for the discharge of different kinds and quantities of seeds as set forth in the specification."

2. "The arrangement of the covering-rollers, mounted as described and performing the purpose of covering the seed, elevating the cutters in turning round, and also in adjusting to different depths, as set forth."

Other claims were applied for, but were disallowed.

Omitted in Wall.

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The five reissues or new patents issued September 11, 1860, in lieu of the original patent of August 2, 1853, and of its first reissue in 1858, were for a number of supposed distinct inventions comprised in the machine, and each contained one or more separate claims.

The claim allowed in the patent of May 8, 1855, for the improvements added to the machine was as follows:

“In combination with the hoppers and their semi-rotating plates, *d*, the runners, *A*, with their valves, *f*, and their adjustment by means of the levers and cams and the driver's weight for the purpose of carrying and dropping seeds by each vibration of the lever *D*, and to regulate the depth of the planting as described.”

By the reissue of December 11, 1860, this patent was subdivided into five new ones; each having one or more separate claims.

The claims of the several reissued patents will be fully examined hereafter.

(*a*) A proper decision of the questions in the cause renders it necessary, in the first place, to ascertain, as near as may be, the actual date of Brown's alleged invention or inventions, such as and whatever they are. His original application for a patent was sworn to on the 27th of September, 1852. But it appears from his own testimony, which does not seem to be discredited, but rather corroborated by others, that he was making experiments in 1850, on a machine which formed the nucleus of his completed invention. He further says that in January or February, 1851, he made a machine which he describes as follows:

“It had two runners and two wheels, two cross-bars and a nose piece (*b*), two braces, dropper's seat, and a tongue. The wheels were hung through the seed-boxes by arms. There were arms running back from the seed-boxes, which the wheels run in, coupled through the seed-boxes with a bolt.

33 Wall. 203-204.

(*a*) Wallace begins Opinion here.

(*b*) Wallace substitutes for “a nose piece” “nose pieces.”

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I had a loop running down each side of the wheel that went onto the axles on the wheels, and worked a couple of short levers fastened on this loop running forward under the fore part of the machine, and running back far enough to put a cross-piece on behind. I am a poor hand at describing it. The seed slide passed through the hoppers, running from one to the other, and the lever operated it with the hand, with a person located on the machine crossways, so that he could see the marks plain on the ground."

Further evidence was given by him descriptive of the machine, and showing its substantial identity with the machine as it stood when the patent was granted.

This, however, was only a model. But it had all the main characteristics of the perfected machine, except that the circular valves were not contained in it, the seed being dropped from the bottom of the hopper by the movement of a straight slide. He further testified that in 1852 he sent that model by his brother to Washington, and that it was very nearly the same as the model filed in the Patent Office, a copy of which was shown to the witness, and is an exhibit in the cause. He further states that in the same year he made, after the plan of the model, a machine of one-half the usual size, but large enough to work with, and that he planted three or four acres of corn with it in May, 1851. He says it worked well. In September of the same year, after harvest, he invited several persons to come and see it operate, giving their names. Several of these witnesses were called and fully corroborate his testimony. Early in 1852 he commenced constructing ten machines, but completed but one of them that spring. With this one, and the half-sized machine before mentioned, he planted over twenty acres of corn, namely: sixteen for himself and eight for Allen Brown. At this time, he says, he introduced into these machines the circular valves, or dropping-plates, in place of the slides, thus completing the machine as it stood when he applied for his patent and made the

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model now before us, which was during the same season. The following spring, 1853, before corn-planting time, he had completed a dozen machines containing all his improvements, and sold them to various persons. Some of them, he says, planted as much as three hundred acres of corn. These machines, he says, contained the high seat and flipper-valve, which were the subject of the patent dated May 8, 1855.

The appellees have endeavored (but we think unsuccessfully) to discredit the statements and testimony of Brown, especially as to the existence of rollers for covering the seed in the model and small-sized machine made in the early part of 1851. He is corroborated on this point by his nephew, V. R. Brown, and others; and nothing but negative testimony is adduced to the contrary.

We think it clear that his machine (except the seat and the flipper-valve) was substantially invented in the beginning of 1851, and that in April or May of that year he had constructed and used a small, working corn-planter, containing all the material parts of his machine as it was when patented, except the circular valve in the hopper, which was added as an improvement on the straight slide in the spring of 1852.

We will next proceed to inquire what machines belonging to the same general class had been invented prior to this period, in order to show the state of the art at that time.

It cannot be seriously contended that Cooke's drill, and other machines of the kind, described in the *Farmers' Encyclopedia*, bear any resemblance to the specific features of Brown's corn-planter. The furrows are made by coulters fixed in beams, and the grain is covered by harrows following the drills. The latter are hollow tubes which are supplied with the seed grain by a revolving cylinder having little cups, or cavities, in its surface, which become filled as they revolve in the bottom of the hopper.

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It is hardly necessary to consume time in reference to the alleged invention of Joab Moffatt, in or about the year 1834, models of which, made from the supposed recollection of witnesses, have been presented to the court. Moffatt himself was placed on the stand, and swears that he has no recollection of having ever invented such a machine. And it is a little singular, if he did invent such a perfect machine as the models represent, approaching so closely in every particular to Brown's corn-planter, that it should have gone into total disuse and oblivion. The general aspect of the evidence relating to this supposed machine, and some remarkable individual features which it exhibits, are sufficient to justify us in throwing it entirely out of the case.

An English patent, obtained by one Hornsby in 1840, was introduced; but the mechanism described therein has very slight resemblance to the corn-planter. It consists of a hollow wheel, with angular compartments and doors in the circumference to receive seed and manure from a hopper, and deposit them on the ground by the revolution of the wheel. This wheel is situated in rear of a coulter running in the ground, and does not touch the ground itself, but is supported on the frame of the machine, which in turn is supported by large driving-wheels on the outside of the frame. The coulter and deposit-wheel are located in the inside of the frame. The inventor, however, observes that more than one coulter and deposit-wheel may be used. No method is described for covering the seed or pressing it into the ground. The side view of the coulter exhibited in the drawing bears some resemblance to the runner in Brown's machine; but we have no other description of it, or of the manner of its operation.

Thomas' cotton seed-planter, patented in 1841, is next adduced. It consists of a long bed piece of plank, supported by two wheels, one on each side, and having a sort of keel underneath, running along the middle, for making a crease or furrow in the ground, and keeping the machine

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in a direct course. In the middle of the bed-piece, over the axle of the wheels, is an aperture to allow a seed-roller affixed to the axle to revolve, having alternate ridges and seed-holes. Over this is a hopper, which holds the seed and communicates it to the seed-roller, by whose revolution the seed is dropped into the furrow. A loose flap is hinged to the rear end of the bed-piece, and drags along on the ground, for covering the seed with dirt. The keel in this machine bears some resemblance to the runner of the corn-planter. This patent requires no further observation. It exhibits a semblance only of one or two elements of Brown's machine.

The next machine in order of time is Henry Todd's, of Oxford, New Hampshire, patented December 15, 1843. It is thus described by the witness, Hale: "The main portion of the machine consisted of a plank or surface-board, three or four feet long, one foot wide, and tapered to a point in front. The seed-box was fastened to said plank. The seed was distributed by cups upon a belt, upon the principle of a flour elevator; the motion was communicated by band from a roller at the rear of the machine; said roller also serving to press the earth over the planted corn. A cutter was fastened to the bottom of said plank, for opening a drill for dropping the seed, and a couple of converging wings fastened to the rear and bottom of said plank for covering the seed. The cutter before mentioned had an upward incline in front, and at the front was thin and sharp, spreading out at its rear end." The machine was managed much like a plow, having two handles. The roller in the rear was connected with the front part of the machine by two arms, one on each side, in which were situated the bearings of its axle, and the forward ends of which were, by pivots or bolts, attached to supports, so that the roller could rise and fall independently of the surface-board or platform of the machine. It resembled Brown's machine in having a cutter (or runner) for making a fur-

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row, in dropping the seed through a cleft at the rear of the cutter, in having a roller to press the earth upon the seed and in having a free connection between said roller and the machine. It differs from it in having but one cutter (or runner) and one roller; it having a pair of wing-like scrapers behind the runner to cover the seed with dirt; an automatic feeding apparatus incapable of dropping the seed in check or cross-rows; and having no levers, and nothing but the plow handles to lift the cutters out of the ground.

Hale was the only witness examined on the subject of this machine. He says he helped Todd make six of them, and that they were used, and worked satisfactorily, in or about 1844. This being all that is heard of this machine in the cause, it is probable that its use was discontinued and that it shared the fate of a thousand other devices which approach the point of final perfection and success, but do not reach it. The differences between this machine and Brown's are just those differences which rendered the latter a success, and a valuable acquisition to the agriculture of the country.

Earle's planting plow, patented in 1848, may be dismissed even more summarily than Todd's machine. It operated automatically in depositing the seed, and was not adapted to check-row planting; the furrow was opened by a plow furnished with a double mold-board; and the seeds were covered by means of scrapers attached in a diagonal position behind the seeding apparatus. It had but one frame, and the seed was deposited by means of a drum, having cavities in its surface, revolving in the bottom of the hopper, and discharging the seed into a tube behind the plow.

Mumma's patent for a seed-drill, granted in 1849, was also put in evidence; but it describes only a grain drill, devised to secure a more equal distribution of seed in the drills or furrows in ascending or descending hills, etc. "To the hind

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- part of the frame a small trunk is jointed, with a long lever attached to it, by which the whole seeding apparatus is raised from the ground when it is transported from place to place." This device of the truck or jack and lever for prying up the machine when being turned or transferred from one place to another, bears some resemblance to Brown's method of raising the front frame of his machine by the levers resting on the drums or wheels. The patent is probably introduced to show this resemblance. It is so slight, however, that it can have no serious effect in the cause.

The machine of Remy & Kelly comes next. They applied for a patent in June, 1850, but withdrew the application in August, 1850; for what cause does not appear. We have before us a copy of the application and accompanying drawings and models of the machine, and the examination of Remy and one Burgess in reference thereto. The machine consisted of a front, middle and rear frames, or parts, the former being mounted by two seed-boxes or hoppers, and being furnished below with two drill-teeth, which cut or scratched the usual small furrow in the ground, and through which the seed was deposited in the earth. Small rollers with cavities in their surfaces were made to revolve in the bottom of the seed-boxes, and thus carried out and deposited the seed in the drill-teeth in the usual manner of drills. The drill-teeth were followed by a transverse row of upright harrow-teeth for covering the grain. These harrow-teeth were inserted in a cross-bar framed into two long levers which were attached to the fore part of the front frame by a loose joint. This apparatus constituted the middle frame. The rear frame was also attached to the front frame by a loose joint, by means of side-bars, extending forward and connected thereto by bolts or pins, and was supported on a transverse roller consisting of four wheels or bulk-heads, and iron bars connecting them together, making a sort of a rolling crate, which rested on the ground, supported the

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drivers' seat and, by means of bands and pulleys gave a revolving motion to the seed-rollers before mentioned. An iron crank, within the driver's reach and fitted in bearings on the rear frame, enabled him to pry up the cross-bar holding the harrow-teeth, and with it the rear end of the front frame with the drill-teeth. This operation, as the tongue was fast and rested on the horses, raised the cross-bar and the rear end of the front frame so as to lift the drill-teeth and harrow-teeth out of the ground. In this respect it produced, by means somewhat different, a result similar to the lifting of the front frame and runners by means of the levers acting on the fulcrum of the wheels in Brown's machine. Only one machine, however, was ever made, and this was made merely for an experiment, in Brookville, Indiana, in the year 1849. It did not contain the pulley-strap for turning the seed-rollers, which the application and model exhibit as part of the invention. Remy, in trying the machine, walked alongside of it and, with a crank, gave the seed-rollers an oscillating motion with his hand, Burgess driving. In this way they planted five acres, which Remy says were planted even and cultivated both ways. But the machine was never used again and was afterwards broken up, and no other was ever made. Remy made many other corn-planting machines on a different principle, but he said there was no demand in that region for a machine of this kind.

The appellees contend that this was an anticipation of several material parts of Brown's machine. But it is obvious that it had not the runners nor the covering rollers, nor was it adapted to planting in check-rows. As presented to the Patent Office in 1850, and in the models exhibited to the court, it was planned for an automatic drill-planter. The experiment made in 1849, when Remy worked it by hand, was a mere experiment, which was never repeated. It may have presented one or two ideas in advance of other machines, but it can hardly be said to anticipate the machine

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which we have described as Brown's. Were it not for the application for a patent it would justly be regarded as an abandoned experiment, incapable of being set up against any other claim. Can the fact that such an application was made and afterwards voluntarily withdrawn, and never renewed, make any difference? We think not. Had a patent been actually granted to Remy & Kelly, it would have been different. The case would then have come directly within the 7th section of act of 1836, which makes a "patent" or a "description in a printed publication" of the invention claimed, a bar to a further patent therefor. But a mere application for a patent is not mentioned as such a bar. It can only have a bearing on the question of prior invention or discovery. If, upon the whole of the evidence, it appears that the alleged prior invention or discovery was only an experiment and was never perfected or brought into actual use, but was abandoned and never revived by the alleged inventor, the mere fact of having unsuccessfully applied for a patent therefor, cannot take the case out of the category of unsuccessful experiments.

The next machine which we will examine is that of James Abbott, which is strenuously claimed as an anticipation of the complainant's machine, or of material parts thereof. Abbott resided in Brimfield, Peoria county, Illinois. Models of his machine are in evidence. No public description of it is produced. No patent was ever applied for by Abbott. He made his first machine in 1846, having one frame and two coulters. The seed was dropped behind the coulters, and the wheels of the machine passed over it. The coulters would clog, and he soon abandoned the machine. In 1848, he made another and put it in operation. Instead of coulters he now used runners, something in the form of a sled-runner, with wings behind to widen the furrow and make a place for dropping the seed. One of the runners was produced on the trial. It was made of wood and shod with iron. The machine had but one frame, and only one

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wheel, which was in the middle between the runners. On each side of the wheel were cams to operate L levers, which worked into the bottom of the seed-boxes and dropped the corn behind the runners. The seed was covered by scrapers or wings which followed the runners. Behind the wheel and runners there was a platform on which the driver stood, and by stepping backward or forward he could slightly elevate or depress the runners. This machine was automatic, a mere drill, and had nothing but the runner in common with Brown's machine.

Abbott then says :

"The next machine which I constructed was, according to the best of my recollection, in the spring of 1852, certainly not later than 1853."

He then proceeds to describe the machine. It had but one frame, and whilst it exhibited some of the same parts which are found in Brown's machine, yet it is obviously a different machine from Brown's, and intended as an automatic drill instead of a check-row planter. But, as in our judgment, the weight of the evidence (of which considerable was taken) is that it was constructed subsequent to Brown's, it is unnecessary to give it further consideration.

Another machine much relied on by the appellees was that of John Kirkman, of Peoria county, Illinois, a farmer, but formerly a mill-wright and engineer. He lived in the same neighborhood as Abbott, and the latter, in his evidence, says that after he had made a drawing of his last machine (above referred to), John Kirkman was at his house and took a rough sketch of the drawing, and soon after made a machine nearly like it, in which he had broad iron wheels. The character of Kirkman's machine is very explicitly shown, exact models of it and one of the actual runners being produced. It was composed of a single frame standing on two runners in front, and two wheels following the runners in the rear. The seed was placed in boxes or hop-

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pers over the rear end of the runners, and was let down to the furrow through a tube enclosed in the rear of the runners by means of an automatic device operated by gearing connected with the wheels. Between the wheels was a platform on which the driver sat or stood. By stepping backward or forward on this platform, and changing the position as to the bearing on the axle of the wheels, the machine could be tipped up or down in front so as to raise or depress the runners. This action was facilitated by the tongue being freely attached by a bolt between the hounds so as to admit of a hinged motion. A cross-bar screwed to the top of the hounds above and the front cross-bar of the machine below the tongue limited the movement thus produced, and also regulated the depth of furrow. In the machine as first constructed a seat was rigged in the rear of the platform for the driver, by moving on which, backward and forward, the same tipping process could be produced. This was afterwards abandoned.

It will thus be seen that Kirkman's machine had some of the prominent features of Brown's. It differed from it in not being a check-row planter, and not planting in hills but in rows, and acting automatically simply as a drill, and having but a single frame.

Considerable evidence, much of it apparently conflicting, was adduced as to the time when Kirkman's machine, or rather several machines (for he built three at different times) were constructed. (c).

The first was an experimental machine, which he had on the tapis for a year or two and finally abandoned. He then made another which failed at first, but afterwards, an alteration being made, it operated well, and he used it for several years, and finally sold it to one Wrigley, in 1856. His third machine was constructed when he sold the second to Wrigley. As the first machine was an experimental one

23 Wall. 212-213.

(c) Wallace inserts "The court here stated and examined this testimony, as to date, and continued," and omits as far as (d).

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subsequently abandoned, and as the third was made after both of Brown's original patents were issued, we are principally concerned with the second machine, which was sold to Wrigley. Kirkman's own testimony is quite positive that the Wrigley machine was made in 1850, and that the experimental one was made a year or two earlier. He says he tried the former (the Wrigley machine), and after planting half an acre with it (his son says "a few rows"), and finding that it did not work satisfactorily, he laid it aside and did not use it again for a year or two. Whether he used it in 1851 he can't remember. He says he did use it in 1852, having made an alteration in it, which made it to work satisfactorily. This alteration was the putting of seed-rollers in the place of slides for letting down the seed, and driving them by a pitch-chain operating as a strap, connected with a hub attached to one of the wheels. He says: "This alteration was made sometime between the spring of 1850 and the spring of 1852." His son thinks the machine was altered and used in the spring of 1851. But there is a good deal of collateral evidence in the case to show that it was not used (unless, perhaps, experimentally) in the season of 1851. Henry W. Snow, a lawyer by profession, testified that in 1851, when he was a boy about fourteen years of age, his father moved onto a farm adjoining Kirkman's, and he saw the planter in Kirkman's yard in that year, and that Kirkman was tinkering with it; that he was altering it by putting in a little chain to move the slide which made the corn drop, the slide being an angular lever. He further states his impression that the first time he saw this corn-planter was in the latter part of the summer of 1851. He says, also, that the quarter section of land, which joined his father's farm eastward, was called the Frink quarter, and was then (in 1851) open prairie; that it was subsequently, he thinks in 1852, purchased and improved by Kirkman. He knows it was not improved in 1851. Now, Francis P. Kingsley says that he knew of

Omitted in Wall.

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Kirkman's making a machine in 1852 or 1853; the description of which as given by him corresponds with the Wrigley machine after its alteration. He says it had "small seed-cups designed to drop one kernel at a time once in so many inches, about eight inches. They were counter-sunk into the cylinder or roller, with screws in the bottom to regulate the depth of the hole"; and that the seed-roller was moved by "a chain something like a buckle; a flat chain with open links." He says he was building one at the same time, and there was a little rivalry between him and Kirkman. He states that he went to see Kirkman's machine before it was finished, and went to see it work after it was completed; and that it was first used "in the field south of his house, on the land commonly known as the Frink quarter." Now, supposing this to be the spring of 1852, it corresponds and harmonizes with Kirkman's own testimony, and a great deal of other testimony in the cause. Two or three persons who worked for Kirkman in 1851, say that they saw no corn-planters used in that year, although they did the year following. Harrison Smith, a brother-in-law of Snow, who lived on the Snow farm in 1851, in sight of Kirkman's, testifies that he saw no corn-planter used by Kirkman in 1851, but that he did use one the next year on the Frink quarter. C. P. Snow, a brother of H. W. Snow, thinks he saw one used some by Kirkman in 1851, across the road; that is, on other land of Kirkman and the Frink quarter. Being asked how much he used it that year, he answered: "I didn't see him use it much; if any, but little; I don't know how much he used it." If this witness is correct, it is probable that what he saw was some experiment of Kirkman before he made the final alterations in his machine (*d*).

A review of the entire evidence on the subject leads us to the conclusion that Kirkman's second machine, called the Wrigley machine, was made in the early part of 1850; that he tried it that spring unsuccessfully; that he then

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laid it by, and did not attempt to use it again until the spring of 1852, after he had made a material alteration in it—which alteration was made after the summer of 1851—and, not completed, as it would seem from the evidence of Kingsley, until the spring of 1852. This would make the machine of Kirkman about contemporary with that of Brown's second machine, which he completed and operated in the spring of 1852; but would bring it, as a completed machine, subsequent to the half-sized machine which Brown completed and operated in the spring of 1851, and publicly exhibited in September of that year.

The machine referred to by Abbott, as having been made by Kirkman by the aid of drawings furnished by him, was most probably the third machine made by Kirkman, in 1856, which is the only one made by him having iron wheels.

(e) The evidence of Thomas Scholey, the blacksmith, does not disagree with this view of the facts. One of the identical shoes or runners of the Wrigley machine is produced in evidence and identified by Wrigley and by Scholey. The latter says he made it in the winter of 1850-51, with the help of his brother, who died in January, 1851. He is very positive on the subject. The entries in his book under date of February, 1853, of work done for Kirkman through Story probably relate to repairs, and not to the original construction of the machine. The amount of the items is not sufficient for the cost of the runners.

(f) The last machines relied on as antedating the appellant's are those of Job Brown, also of Peoria County, Illinois. According to his testimony, he was experimenting on the subject in 1849, 1850 and 1851. In 1849 he made a machine with one runner placed under a plank. It bore no resemblance to the appellant's machine except as to the runner, and it did not work satisfactorily. In the spring of 1850 he made a second machine, having two runners and two wheels running behind them, to cover the seed, and a

23 Wm. 213-214.

(e-f) Wallace omits from (e-f).

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third wheel, larger than the others, situated forward in the middle, for the purpose of working the apparatus for dropping the seed. It was intended as a check-row corn-planter, and was tried for that purpose, but failed; and what was planted with it was planted only in single rows. It was afterwards abandoned. As Brown says, "It became common stock in my lumber yard." In the same year, 1850, Job Brown made another machine, or, as his son says, two of them, with two runners each; but they had no wheels running behind the runners to cover the corn. They had an iron shaft running through the hoppers, with an apparatus for taking up and dropping the seed; and this shaft had a wheel at either end, outside of the machine, for giving it a revolving motion. This machine had a seat for the driver, but only one frame, and the tongue was bolted fast to that, so that there was no means of tilting the runners out of the ground. Job Brown says that he altered this machine, in the spring of 1851, by changing the seeding apparatus. He removed the shaft and substituted lever-bars with slides entering the hoppers, and an upright lever extending above the seat, for working the bars. He thus placed a dropper as well as the driver on the seat. In 1853 he placed the wheels so as to run behind the runners. As thus finally altered it bore some resemblance to the appellant's machine, in certain particulars. It is true, it had but a single frame, with no hinged joint, and could not be tilted out of the ground; the driver and dropper had to dismount in order to turn around; nevertheless, it had a dropping device worked by hand by an attendant who dropped the seed in check-rows, and had a seat for both driver and dropper, and had runners and wheels running behind them to cover the seed. It was not thus completed, however, until 1853, long after the construction of appellant's machine. In the spring of 1851 Job Brown made two other machines. One was a two rowed machine with a single frame, having two runners, followed by two rollers;

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but, as Job Brown himself says, working automatically "as a drill-planting machine." "We left off the lever entirely," he says, "and depended on the wheels to do their own dropping." His son says that it was also arranged to be worked by a hand-lever by an attendant on the machine. A model was put in evidence, which, as the son says, represents substantially this machine, but according to Job Brown's own testimony, this model represents the machine which was altered in 1853. Its features are substantially as before stated. Affected by this degree of uncertainty as to character and date, it must be received with caution, even on those points on which it presents resemblances to the appellant's machine. Job Brown constructed another machine in the spring of 1851, which presents, as he considered, the final and most perfect form of his inventions. It consisted of a single frame, with three runners and no wheels; a seat on the machine for the driver and dropper; and an apparatus worked by a hand lever for dropping the seed in check-rows. A model of it was given in evidence. Job Brown applied for a patent for this machine December 31, 1852, but subsequently withdrew the same. He says he conceived the idea of the machine in the early part of the spring of 1851, and completed it about the first of May, and used it for planting corn, planting about two hundred acres that spring. There is some evidence that this machine was made at an earlier date; but the weight of evidence agrees with this testimony of Job Brown. Its likeness and unlikeness to the appellant's machine are apparent from the above description. The apparatus for covering the seed consisted of a fan-shaped flange or tail projecting behind the runner. One of the persons who used it says that he had to follow behind to cover the seed, some of which would remain uncovered where the ground was uneven. Only the single machine above mentioned was made until 1853, when Job Brown says he had about forty of them made, and sold them to various parties. In

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a letter to the Patent Office, of August 5, 1853, urging his application for a patent, he refers to this machine as being the crowning result of seven years' experiments. He evidently regarded his other machines as experiments, or at least as secondary in importance and usefulness to the last machine.-

(*g*) We have not referred to the evidence of Nathaniel Smith or Butler, because we do not regard their testimony as materially adding to that of Job Brown and his son (*h*).

A machine of one Edward P. Farley, invented in January or February, 1853, was introduced in the case for the purpose of showing that Brown's improvement of placing the driver on the machine, which formed one of the subjects of his second patent, had been anticipated. There was a long platform on Earl's machine, the front part resting on and fixed to the runners, the rear resting on the axle of covering wheels following the runners. The driver rode on this platform, and by stepping forward he could press the runners deeper into the ground, and by stepping back he could raise them out of the ground, using the wheels as a fulcrum. The bearing of this machine on some of the reissued patents will be noted hereafter.

On the subject of the flipper-valve (so called), the appellees have introduced two machines, one by Charles Finn, for which he applied for a patent in April, 1852, but which application was rejected; and the other by Jarvis Case, for which he applied for a patent December 9th, 1853.

These devices will be examined more particularly hereafter, when we come to consider the claim for the flipper valve as contained in the reissued patent No. 1,095.

We have thus gone over and explained, as well as the subject will admit, the various machines and inventions which constitute the history of the special art under consideration, up to the time that Brown's machine was produced. In the light of this review we are to determine the

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extent and character of his various patents and claims, and how far they are valid or void.

It is very obvious, at a glance, that the claim of reissue No. 1,037, which is for the construction of a shoe or runner for seed-planting machines generally, cannot be sustained. That device was used long before Brown made his machine. Without adverting to Thomas' cotton seed-planter, it was contained in Todd's patent in 1843, and was used by James Abbott in 1848, by Kirkman in 1850, and probably by Job Brown in the same year and the year before. There is nothing in the particular form and shape of the appellant's runner which is sufficiently diverse from others that preceded it, to entitle it to the merit of an invention.

Most of the other claims are more complicated, and require more careful consideration to understand their fair scope, in view of what had been accomplished before. It may be remarked in passing, that, in our view, the several reissues are for things contained within the machines and apparatus described in the original patents; but whether they were anticipated by prior inventions, or are void for any other reason applicable to patents and claims generally, is still open. The question of fraud in obtaining these reissues must be regarded as settled by the decision of the Commissioner of Patents.

The first patent in the series of reissues is No. 1,036, by which is claimed as the invention of the appellant a "seed-planting machine, constructed principally of framework, the front part of which is supported on not less than two runners or shoes, with upward-inclining edges, and the rear part supported on not less than two wheels, the latter being arranged to follow the former, substantially as and for the purpose set forth."

The machine is so constructed that an additional pair of wheels may be attached to it for the purpose of dropping the seed automatically where the nature of the soil is such

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as to render this method admissible in check-row planting. But with that aspect of the machine we are not at present concerned, except as it affects the general description of the machine as a whole. The specification describes the manner of its construction and operation for both automatic planting and hand planting. It is in its latter aspect that we shall principally examine it.

The last clause of the above claim, "substantially as and for the purpose set forth," throws us back to the specification for a qualification of the claim, and the several elements of which the combination is composed. The thing patented is not only, first a seed-planting machine, made principally of framework, but, secondly, it is composed of two distinct parts; thirdly, the front part is supported on two or more runners with upward inclining edges; fourthly, the rear part is supported on two or more wheels, arranged to follow the respective runners, and each and all of these parts are to be thus constructed and combined "substantially as and for the purpose set forth." That is to say, the object and purpose of the machine as a seed-planting machine is explained to be to plant corn in check-rows, so that it may be cultivated both ways, and its construction is adapted to that end. The devices used for effecting this purpose, both automatically and by hand, are described in the specification, but they are claimed in separate patents, and only affect the one in question as they modify and affect the general structure of the machine. Again; the object and the purpose of constructing the machine of framework in two distinct parts, supported separately, one by the runners and the other by the wheels, is expressed to be "so that the rollers may rise and fall without disturbing the runners, or so that the runners may yield or move independently of the rollers." The particular manner of connecting the parts, although described in the specification, is the subject of a separate patent. Again; the object and purpose of the runners and wheels or rollers, the latter ar-

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ranged to follow the former, is set forth, the former to make a furrow for the seed, the latter to "close up and press the earth down over the seeds." The adaptation of the machine, and the several parts mentioned, to these several objects and purposes, is thus made a part of the combination of elements called for and made requisite in the claim under consideration.

The claim thus limited is considerably narrowed in its operation. It is substantially for a combination of the material parts of the entire machine, and no one can be said to infringe it who does not use the entire combination.

The first question to settle is, whether, as thus limited and restricted, the patent is valid, or whether the invention, as thus patented, was anticipated by prior inventions.

It is obvious that we may lay out of the question all seed drills. They were not constructed for the specific purpose for which this machine was constructed, namely ; to plant corn in check-rows, and had not the apparatus adapted to such a purpose. The plow-shaped drill of Todd, though it had a cutter under the front part and rollers drawn behind for covering the grain, was only a step in the right direction. It was a mere drill, planting in single rows, and not adapted to plant in check-rows ; and it was handled and operated in an entirely different manner from Brown's.

Earle's, Mumma's and Remy & Kelly's inventions may also be dismissed without observation. The description of them heretofore given shows that they were mere drills, that they had no covering wheels, and were not constructed for nor adapted to the purposes for which Brown's machine was made. Besides, as before seen, the machine of Remy & Kelly was a mere experimental one, abandoned by the inventors. We may also lay out of view Abbott's drill, constructed in 1848, the only one that can by possibility be brought into the case. That had no covering-wheels, had but one part or frame, and was not a check-row planter. Kirkman's machine also had but a single

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frame or part; was a mere drill, not planting in check-rows, nor even in hills. Besides, as a machine it was incomplete and unfinished until the alteration which was made in it in 1852, when it was first rendered capable of practical use.

It is urged by the appellees that all those parts of Kirkman's machine which were completed in 1850, and not subsequently altered, should be considered as perfected, although the machine, as a whole, was not perfect and did not subserve the expectation of the inventor until the alterations were made in the seeding apparatus in 1852. It is undoubtedly true that a subsequent inventor could not claim as his original and first invention the separate parts of which Kirkman's machine consisted, and which worked satisfactorily after the machine was perfected. This would prevent the appellant from claiming as his invention the separate parts of which Kirkman's machine consisted; but it would not prevent him from claiming such new combination of those parts with devices of his own as would result in a useful and satisfactory machine adapted to the purposes of its construction.

The machines of Job Brown, which are more or less relied on, were all composed of single frames entirely rigid. The machine with one runner, constructed in 1849, was a failure, and is not pretended to have been at all like the appellant's. The machine with two rollers and one large wheel, constructed in 1850, was automatic, could only plant in rows, so as to be worked one way, and failed entirely as a check-row planter. The other machine or machines, constructed in 1850, had rollers, but these did not follow the runners until altered in 1853, and were not used for covering the corn, but for turning a shaft in the hoppers by which the seed was dropped. This is clearly proven and is shown by their thickness, which was little over an inch. They were abandoned for the three-rowed machine without rollers, which was built in 1851, and for which Job Brown

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applied for a patent in December, 1852. It is apparent that none of these machines anticipated the appellants' machine as containing the particulars combined in the claim of the reissued patent No. 1,036.

This patent, therefore, construed and limited in the manner before stated, we hold to be valid.

The next question is, whether, as thus construed, the patent is infringed by the defendants. It needs but a glance at the defendant, Bergen's machine, a large model of which is produced in court, to see that it has all the essential characteristics of the appellant's machine. It is a seed-planting machine, made principally of framework, composed of two distinct parts, the front part supported on two runners or shoes, with upward inclining edges and the rear part supported on two wheels, the latter being arranged to follow the former, and the whole and each part constructed and put together for the purpose and substantially in the manner as is done in Brown's machine and according to his specification. The only pretence on which it can be claimed to be different, is that the "framework" of which it is constructed is not the kind of framework described by Brown in his specification, namely: "without gearing, without spoked wheels, and other expensive fixtures, and resembling a drag or sled more than it does a carriage or wagon in its main or general construction." By this description, Brown was evidently attempting to show how simply and cheaply the thing could be made, not that it was to be confined to that specific form. It might as well be contended that he intended to confine his invention to wood, and that a machine made of iron or other metal, though made in precisely the same form, would not be an infringement, because it would not have the same quality of cheapness and simplicity which he describes. In fine, we do not understand Brown as limiting his invention to this cheap form, but as showing how cheaply and simply it would bear to be constructed. This, we think, is the fair

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meaning of his language when taken in connection with the whole specification. A literal construction is not to be adopted where it would be repugnant to the manifest sense and reason of the instrument.

The machine of Selby, which is the subject of the suit of *Brown v. Selby*, in the second case, has all the material features above specified as contained in Bergen's. We have no hesitation in saying that both machines are infringements of the appellant's patent.

The next claim to be considered is that of reissue 1,038. The appellant describes the nature of the invention sought to be secured by that patent as follows:

"The nature of this part of my invention consists in combining with a seed-planting machine constructed principally of frame-work, and with not less than two runners and two wheels, a hinged joint between the point of the tongue and the rear part of the machine (or between what I term its ground supports), so that one part may, by means of said hinge-joint, be raised, lowered, adjusted or supported on the other part for purposes herein mentioned; meaning by 'one part' and 'the other part' the part in advance and the part in rear of said hinge-joint."

The claim adopts nearly the same language, and is in the following terms:

"What I claim under this patent is, in combination with a seed-planting machine, constructed principally of frame-work, with not less than two runners and not less than two wheels, a hinged-joint between the point of the tongue and the rear part of the machine, so that one part of the frame-work may be raised, lowered, adjusted or supported on the other part, substantially as described."

Understanding this claim as applying and confined to a seed-planting machine, consisting of two separate parts, with runners under one part, and rollers or wheels under the other, we do not find in any of the machines produced to us this particular feature of the hinged-joint in combi-

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nation with the elements referred to. Kirkman's came the nearest to it, if we should designate as a hinged-joint the free connection of his tongue with his machine, which was made by a common bolt between hounds, like those of a wagon. But his machine lacked the elements of the two distinct parts or frames, which are essential in Brown's, and are implied in the claim of this patent. The hinged joint as an element in the combination with which it is connected, and of which it forms a part, is useful and valuable. Without it the machine would lack a very material ingredient of its efficiency and usefulness. The device of connecting and combining it with the two integral parts of the machine, and thus connecting and combining those parts so as to produce a useful effect, is one that may be properly denominated invention, although the hinged-joint itself may have existed in other machines which perhaps suggested its use in this. Indeed, the hinged-joint, in one form or another, is an old device. It is exhibited in the reaches of a common wagon, whose fore wheels and hind wheels, in passing over inequalities and obstructions, rise and fall independently of each other. But in the corn-planting machine it has two specific and useful effects, namely: in securing the freedom of the runner from needless disturbance from the rear part of the machine as it pursues its path along the surface, making a furrow of uniform depth, and in enabling the attendant to raise the part containing the runners out of the ground, with ease, by means of a lever resting on the other part.

The appellees insist that this patent attempts to secure an old device merely applied to a new use, and that the supposed new use is analogous to that which the same device subserved in the machine of Remy & Kelly. But we have seen that the machine of Remy & Kelly was a mere experiment, abandoned by the inventors. And the device in question is not claimed as an original invention, nor as an improvement; it is only patented in combination with

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other material elements of the machine to which it is attached as a part. As an element in that combination alone is it claimed. The combination expressed in the claim, viewed as an entirety and in reference to its purposes and uses, is new, and produces a new and useful result. And it is no objection to the validity of a patent for such a combination that some of the elements of which it is composed are not new.

It is objected to several of the patents under consideration that they do not state what parts of the machine patented are new and what parts are old, and that they are, therefore, void. There is nothing in the patent law which, in terms, requires the patentee to do this. The language of the act of 1836, under which these patents were drawn, is, that before any inventor shall receive a patent for his invention or discovery he shall deliver a description thereof, and of the manner and process of making, constructing, using and compounding the same, in such full, clear and exact terms as to enable a person skilled in the art to reproduce it; and the act directs that the inventor shall particularly specify and point out the part, improvement or combination which he claims as his own invention or discovery." This, of course, involves an elimination of what he claims as new from what he admits to be old. But what can be a more explicit declaration of what is new and what is old than the summary of the patentee's claim at the close of the specification, if that is made in clear and distinct terms, or in terms so clear and distinct as to be fairly understood. It implies that all the rest is old, or, if not old, that the applicant does not claim it so far as that patent is concerned. If the patentee, by his specification, including the summary claim at its close, points out and distinguishes what he claims as his own invention, it is all that is required. That, if we can find it without difficulty or embarrassment, is what he claims as new; the rest he impliedly, if he does not expressly, disclaims as old.

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No particular form of words is necessary if the meaning is clear.

These observations apply equally to patents for combinations and patents for improvements. Where a patentee, after describing a machine, claims as his invention a certain combination of elements, or a certain device, or part of the machine, this is an implied declaration, as conclusive, so far as that patent is concerned, as if it were expressed, that the specific combination or thing claimed is the only part which the patentee regards as new. True, he or some other person may have a distinct patent for the portions not covered by this; but that will speak for itself. So far as the patent in question is concerned, the remaining parts are old or common and public.

The patents under consideration expressly declare, for the most part, what the patentee claims; generally referring, it is true, to the specification as embodying the substantial form of the invention. Such a reference is proper if it does not introduce confusion and uncertainty, and is often necessary for restraining the too great generality, or enlarging the literal narrowness of the claim.

These remarks apply to reissue 1,038, which we are now considering. We regard it as sufficiently explicit; and we think the patent is valid.

The next inquiry is, whether this patent is infringed by the appellees. It is apparent, on inspection of the models before referred to, that they exhibit every requirement of the patent. They clearly have, "in combination with a seed-planting machine, constructed principally of framework," and consisting of two separate parts, with two runners under one part and two wheels under the other, a hinged-joint between the point of the tongue and the rear of the machine, so that one part of the framework may be raised, lowered, adjusted or supported on the other part, substantially as described in Brown's specification. In Selby's machine, it is true, the hinge-joint is not located at

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the same point (the seed boxes) as in Brown's machine, but is at the front point or toe of the runner. This is not a substantial difference. The office, purpose, operation and effect are the same as in Brown's machine, and a change a little more or less backward or forward does not change the substantial identity of the thing. The same remark applies to the location of the hinge joint in Bergen's machine, which is at the rear part of the front frame.

We do not see how it can be seriously contended that either of the machines is not an infringement of this patent.

Reissue 1,039 contains two claims, as follows:

"What I claim under this patent is a seed planting machine, wherein the seed dropping mechanism is operated by hand or by an attendant, in contradistinction from 'mechanical dropping,' the mounting of said attendant upon the machine, in such a position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto, substantially as herein set forth.

I also claim, in combination with a seed-planting machine, composed substantially of framework, and upon which the person who works the seed-slides or valves sits or stands, a lever or its equivalent, by which a driver or second attendant may raise or lower that part of the framework that carries the attendant and the seeding devices, and thus ease the machine in passing over intervening obstacles or in turning around, substantially as described."

The first of these claims, if construed simply as claiming the placing of the seed-dropper on the machine, would probably be void, as claiming a mere result, irrespective of the means by which it is accomplished. But if construed as claiming the accomplishment of the result by substantially the means described in the specification, it is free from that objection; and we ought to give a favorable construction, so as to sustain the patent if it can fairly be done. By reading the claim in connection with the final quali-

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fying clause, thus, "the mounting of said attendant upon the machine, etc.; substantially as herein set forth," the fair construction would seem to include the means and manner of placing him upon the machine. This view is corroborated by reference to the body of the specification. "To enable others skilled in the art," says the patentee, "to make and use this invention, I will proceed to describe the same, with reference to the drawings." He then gives a detailed description of the seat or platform and its relation to the other parts, and the mode of occupying and using the same. Construing the claim in this manner, is it, then, a valid claim?

The only device of a similar character at all competing with it in the matter of time, was that used by Job Brown, in his machines constructed or altered in the spring of 1851, the same spring in which the appellant's machine was made. Which was first made, it is impossible for us from the evidence to tell. Job Brown, as well as the applicant, applied for a patent for one of his machines having the arrangement of a seat for the dropper. A patent was granted to the appellant, and none was granted to Job Brown. The Patent Office subsequently amended the appellant's patent so as to include a claim for this very thing in question. Under these circumstances, in the absence of conclusive evidence to the contrary, the presumption is in favor of the appellant. The burden of proof is on the party who sets up the objection of "prior use" against the patent.

The second claim is for a combination, embracing, as one of its elements, the arrangement or seat for the dropper last described; and if that was new, this combination must also be new. And, indeed, we shall look in vain in any previous machine for the lever here described in the combination with which it is associated. Standing by itself, the lever as well as the hinged joint was exhibited in the experimental machine of Remy & Kelly. But as, in our view, that machine was never brought into successful operation

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until after Brown's invention was completed, we do not regard the fact referred to as seriously affecting the question. The particular combination described by the patent under consideration is new, and the claim is valid.

This is the proper place, however, to notice an objection made against the three patents conjointly, namely: reissues 1,036, 1,038 and 1,039. It is contended that they are for substantially the same combination. We do not think that this is the fact. We regard the reissue 1,036 as a patent for the corn-planting machine in outline, comprising its most essential elements, namely: constructed principally of framework "substantially as and for the purpose set forth" in the specification; containing the two frames or parts, loosely or freely connected; one supported by the runners, the other by the wheels following them, each having its distinct purpose as indicated; and the seeding apparatus being arranged for planting in check-rows, whether automatically or by hand, the method of each being shown in the specification. This patent does not call for a hinged joint with its particular appliances, or for a particular arrangement of seat or location for the dropper. Reissue 1,038 is for a different combination, including the separate parts or frames, the runners, the wheels, and lastly the hinged joint so arranged that one part of the framework may be raised and lowered on the other part. Reissue 1,039 claims, first, a seat or platform for the dropper, on the machine, so that he may watch the cross-rows and plant by them; secondly, in addition thereto, the particular device of the lever, by which the driver may raise or lower the framework that carries the dropper.

This view of the relative objects of the three patents, as we think, shows that they are not obnoxious to the objection raised.

Having already examined the question of infringement as it respects reissues 1,036 and 1,038, it remains to inquire whether the appellants have infringed reissue 1,039. Of

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this there can be no doubt. In both of their machines the dropper is mounted on the machine on a seat or platform arranged for that purpose, so as to observe the cross rows, and drop by them; and in both, levers are used (not precisely in the form of Brown's, but equivalent thereto, and substantially the same), by which the driver may raise or lower that part of the framework that carries the dropper and the seeding devices. In Bergen's machine, this lever is the rear frame itself, which is hinged to the rear part of the seeding-frame, and is operated by the driver by tilting it back and forward by his own weight.

It is unnecessary to examine reissue 1,040, as there is no pretense that the appellees have infringed that patent.

The second group of reissues is next to be considered.

The first, No. 1,091, after describing the entire machine as finally perfected by Brown, prior to the issue of his second patent, May 8, 1855, has the following claims:

"First. In combination with a seed-planting machine that is operated by hand, the placing of both the driver and the person who operates the seed-slides or valves, upon the machine, in such position as that each may attend to his particular duty without interfering with that of the other, substantially as described.

I also claim, in combination with a seed-planting machine, that is operated by hand, and upon which the driver and the person who works the seed-slides or valves sit or stand, the so locating of said seats or stands so that the weight of one of the persons may be used to counterbalance or overbalance the weight of the other, for the purpose of more readily raising or lowering the seeding apparatus, substantially as and for the purpose described."

These claims are analogous to those of reissue 1,039 and the first is anticipated by the machines of Job Brown, constructed and altered in the spring of 1851. It is not pretended that the appellant placed both attendants on his machines until the spring of 1853, when he placed the

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driver's seat, as well as the dropper's, on the twelve machines which he manufactured and sold at that time.

The second claim is for the relative location of the seats for the driver and operator, such that one of them may overbalance the weight of the other, and thus more readily raise or lower the seeding apparatus. The claim is made only in reference to machines operated by hand, on which both driver and operator sit or stand. The seats themselves can be of little consequence in this combination. The relative location of the attendants is the material thing.

The process of tilting the frame of a seed-planter on the wheels as a fulcrum, by shifting the weight of the driver standing or sitting thereon, was exhibited in Kirkman's machine, in the spring of 1852, and in Farley's model, made in January, and publicly deposited in the Patent Office in February, 1853.

The appellant does not fix the date of his alleged improvement earlier than the 20th of April, 1853, it being first introduced, into the twelve machines built in that year. He was anticipated, therefore, by Kirkman and Farley, so far as their machines were identical with his. They do not come within the literal terms of his claim which refers the improvement only to machines operated by hand, and on which the operator is carried. Kirkman and Farley had no operator and, of course, had none on their machines. Was this difference material? The device was not altered by Brown substantially, in form, operation or purpose. The only difference was the presence of the dropper on the machine, making a greater weight to be raised than existed before, and applying it to a check-row corn-planter. It seems to us that it was simply the application of an old device to a new use.

We are of opinion, therefore, that reissue 1,091 is void.

The claim of reissue 1,092 is as follows:

"What I claim under this patent is: in combination

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with a seed-planting machine, operated by hand, and having its seeding devices forward of the center of the wheels, and forward of the driver's seat and a hinged connection, the locating of the seat in such relation to a line drawn through the centers of the wheels or ground-supports, as that the occupant of said seat may, by moving himself, or throwing his weight forward or backward on his seat, without the necessity of rising, walking or standing over or near the seeding devices, force the seeding apparatus into or raise it from the ground substantially as described."

After a careful consideration of this claim we are brought to the conclusion that the subject of it is not patentable. Prior inventions having placed the driver on the machine, and having constructed the platform in such manner that his movement backward or forward would raise or lower the seeding apparatus, and the seat itself not being claimed as new, it can hardly be contended that the proper location of the seat for effecting the same object, required the exercise of inventive power.

The next patent, reissue 1,093, after describing the machine as before, with its runners and front frame, its wheels and rear frame, its seat for the driver over the wheels, and contrivance for raising and lowering the front frame, its seat for the dropper over the runners, its hinged joint, etc., concludes as follows:

"There are two points in this machine that have unvarying positions or heights with regard to the ground, viz.: the point of the tongue, as its height is defined by horses' necks, to which it is attached, and they standing of course upon the ground, and the journals or axle of the covering or supporting wheels, F F, as they roll on the ground, and between these fixed points, the hinged connection between the front and rear part of the machine, is made so as to admit of raising or lowering the seeding devices.

Having thus fully described the nature and object of this part of my invention, what I claim under this patent is, in

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combination with a seed-planting machine that has a hinged or yielding joint between its fixed points of support, and with its seeding devices between said points, the so connecting of the parts between said fixed points of support as that that portion of the machine carrying the seeding devices may be raised up out of the ground by the attendant riding on the machine, and be carried by the tongue or horses' necks, and the supporting wheels, substantially as and for the purpose described."

The precise thing claimed here, after defining the combination of which it is to form a part, is, "*the so connecting of the parts*" as to produce the result mentioned, "*substantially as and for the purpose described.*" If this means to include *any* and *every* connection of the parts which will produce the result "substantially as described" (which result is to enable the attendant, riding on the machine, to raise that portion of the machine carrying the seeding devices out of the ground so as to be carried on the horses' necks and the wheels), then the claim was anticipated by Kirkman, for the connection of the parts in his machine enabled the attendant, riding on the machine, to raise the front part which carries the seeding apparatus, out of the ground, when it would be suspended on the horses' necks and the wheels; and he had a hinged joint between the fixed points of support. The same might be said of the machine of Remy & Kelly, if it were to be taken into consideration in determining this question. But if the claim is to be construed as limited to the mode of connecting the parts in the appellant's machine (being a hinged connection between the two frames and, therefore, different from Kirkman's machine), and to the means by which the final result was accomplished, namely: by the shifting of the driver's weight on the machine, and, therefore, different from Remy & Kelly's, then this objection would be obviated. But thus modified, it would substantially correspond with reissue 1,038, being simply for a mode of

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doing that, with the driver on the machine, which was done before, under 1,038, with the driver on the ground, employing only in addition the mode of operation used by Kirkman. In other respects the two combinations would be precisely the same.

We are of opinion, therefore, that this patent cannot be sustained.

The next patent, reissue 1,094, is for a matter too frivolous to form the subject of invention. It is simply for a peg or stop to prevent the rear part of the machine from tipping so much as to dump the driver onto the ground. No mechanic of any skill would construct a machine of the character described without providing some such arrangement. This patent is not sustained.

The latest patent of the series, reissue 1,095, is for a peculiar valve in the tube through which the seed is dropped to the ground, called the flipper-valve. When the machine is in motion, the time taken for the seed to drop from the hopper to the ground, supposing it to drop from a height of only 18 or 20 inches, would carry it forward more than a foot after its discharge, and thus carry it beyond the cross-row. It became important, therefore, to drop the seed from a point near the ground, or from the bottom of the tube instead of the hopper, at each movement of the lever by the operator. To do this required two movements; one for dropping the seed from the hopper into the tube; the other for dropping it from thence to the ground. By the device described in this patent, which was noticed at the commencement of this opinion, both of these movements of the seed take place at the same instant and by one movement of the hand; the seed for one hill being dropped into the ground at the same time that the seed for the next hill is dropped into the tube.

The claim of the patent is in the following words:

“Having thus fully described my invention, what I claim under this patent, is so combining with a lever, by

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which both may be operated, a valve or slide in the seed-hopper and a valve in the seed-tube, as that a half motion of the lever by the operator riding on the machine, by which they are operated, shall both open and close the seed passages at regular periods, and pass measured quantities only, substantially as described.”

As before stated, the mode by which this was effected was by placing in the seed-tube a long, slender valve composed of a slip of metal suspended on a pivot in the middle, so that when one end was pushed forward the other end would be pushed backward. In this way each movement of the upper extremity would let a charge of seed into the tube on one side and keep it there, whilst the simultaneous movement of the lower extremity would discharge the previous charge on the other side.

The appellees endeavored to show that this apparatus was anticipated by the inventions of Charles Finn and Jarvis Case, before mentioned. Finn says that he invented his machine in the summer or fall of 1851. The seed-dropping apparatus consisted of a vibrating side or back to the seed-tube, which required two movements, one backward and the other forward, for dropping each hill of corn, alternately opening and closing the tube. It was operated by levers in connection with the valves in the hoppers. But each hill or check-row required one movement of the lever to let the seed into the tube and a reverse movement to let it out. And this double movement was repeated at every check-row. Whereas, by Brown's apparatus, both results were accomplished by a single movement; a forward movement effecting a dropping for one check-row and a backward movement effecting it for the next. It is evident that, although there was a similarity between the two processes, they were essentially different. It may be that Brown's is only an improvement on the process used by Finn. If this be so, still it is only the improvement (that is, the machine as he uses it) that he claims by his patent.

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The machine of Case, which he swears he constructed in March, 1853, is still more unlike Brown's in form, though less unlike in operation. It has two independent valves, one in the hopper to let the seed into the tube, and one at the bottom of the tube to let it out. These two valves are so connected by a chain or string that both are opened at once. A spring is arranged to shut them as soon as possible, so as to prevent the seed admitted above from escaping below until the next movement of the lever. This apparatus, it is true, requires but one movement of the hand for each dropping, the spring performing the other. But the spring has to be drawn by the force of the hand so as to have the necessary recoil. The same strength has to be exerted by the operator as if he made both movements with his hand. It is evident that this device is also different from the appellant's. The two have similarities, but they are essentially distinct machines.

But it is insisted that Brown, in 1860, admitted in a newspaper article that the process in question was old. We have examined the article and, according to our construction, his declaration amounted, in substance, to nothing more than that the principle of the double drop was old, which was probably true; and that Case's application of it was old, which may or may not be true; but it does not contain or amount to an admission that his own peculiar process was old.

We think, therefore, that this patent must be sustained.

The last patent is clearly infringed by the Selby machine. The flipper-valve and mode of operating it are almost precisely the same.

In the case of the Bergen machine, it is contended that no lever is used for moving the connecting rod backward and forward between the hoppers. A fixed perpendicular handle is used instead of a lever. The question is: whether that is such an alteration as to change the character of the combination. The object in view is put into the

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hand of the operator something by which he can move the connecting rod and, consequently, open the valves, the instant he comes to the cross-row. It is of no consequence in the world whether the cross-bar moves in the same direction with his hand or in the reverse direction. A lever working on a pivot or fulcrum between the hand and the connecting rod, would cause the latter to move in the reverse direction to that of the hand; a lever working on a pivot or fulcrum below or beyond the connecting rod, would cause the latter to move with the hand; so would a lever or handle firmly fixed to the rod. The claim is for "a lever or its equivalent," in combination with other things. Whilst, in most cases, a mere handle is not the equivalent of a lever, because not capable of performing the same functions, in this case it is an equivalent because it does perform precisely the same function in substantially the same way.

In our judgment, both machines are an infringement of the patent.

We have thus, with perhaps unnecessary detail, gone over and considered the various questions and points raised in these cases. The result is that the reissued patents, numbered respectively 1,036, 1,038 and 1,039 of the first series and 1,095 of the second series, are sustained as good and valid patents, and that the appellees are infringing the same.

The decree of the Circuit Court in these cases must be reversed and the causes remanded, to be proceeded in according to law.

Mr. Justice CLIFFORD, (*i*) dissenting:

Applicants for a patent are required to file in the Patent Office a written description of their invention, and of the manner and process of making, constructing and using the

23 Wall. 234-235.

(*i*) Wallace adds, "with whom concurred Justices MILLER and DAVIS."

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same, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains or with which it is most nearly connected, to make, construct and use the same; and in the case of a machine, he must explain the principle thereof and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions. Patents granted without a compliance with those conditions are invalid, as the express requirement of the act of Congress is that every inventor or discoverer shall do so before he shall receive a patent for his invention or discovery. 16 Stat. at L. 201.

Letters patent were granted to the complainant on the 2d of August, 1853, to take effect from the 2d of February prior to the date of the patent. Seed-planter is the name of the invention given in the patent, but in the introductory part of the specification it is denominated "new and useful improvements in seed-planters for planting corn and smaller grains." Very minute description is given of the machine and of the several devices of which the machine is composed, for the declared purpose of enabling others skilled in the art to make and use the invention. Suffice it to say, without entering into details, that of all the numerous devices described as ingredients of the machine not one of them is new, nor is it claimed that the patentee either invented the machine or any one of the ingredients of which it is composed. What he claims in that patent is as follows: (1) The oscillating horizontal wheels or distributors in the bottom of the hopper, having slots and tubes of various sizes, *in combination* with the stationary caps and pins for the discharge of different kinds and qualities of seeds. (2) He also claims the arrangement of the covering rollers, mounted as described, and performing the functions of covering the seed, elevating the cutters in turning the machine, and also in adjusting the cutters to different depths.

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Tested by the descriptive portion of the specification the better opinion is that the second claim is also for a combination; but in the view taken of the case it is unimportant whether it be regarded as a method of accomplishing the described result or as a combination of the described ingredients to effect the same end, as it is quite clear that the patentee does not claim that he is the original and first inventor of any one of the several devices of which the entire machine is composed. Beyond all doubt the invention consisted of the two combinations described in the respective claims, and it is equally certain that the letters patent were in all respects sufficient to secure the full enjoyment of the patented machine to the patentee. Nevertheless, the patentee surrendered the same, and on the 16th of February, 1858, the same was reissued to him with amended specification which contains only one claim. Instead of claiming a combination of old ingredients, as in the original patent, he claimed in the reissued patent a shoe for opening a furrow, which has a convex edge in front and a seeding tube in its rear end, so that it may cut through any grass, open out a furrow and hold it open until the seeds are deposited in the same, substantially as set forth in the specification.

Like the original patent the reissued patent was in form both operative and valid; but, inasmuch as it was not sufficiently comprehensive to supersede all other improvements, the patentee surrendered it for a second time and caused the original invention to be reissued in five parts, embracing several claims, all of which except one are involved in the present action.

Surrendered patents cease to be a cause of action from the moment the surrender takes place, nor can the owner of the patent recover, even for an infringement which preceded the surrender, unless the claim for profits or damages had passed into judgment before the surrender took place. Such a patent, though inoperative as a cause of ac-

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tion, may be admitted as evidence to support or disprove an issue that the reissued patent is not for the same invention as the original. Reference may also be made to such patent, as to a repealed statute, to aid in the construction of a reissued patent, if the latter is ambiguous, but it ceases to be operative for any other purpose just as much so as a repealed statute, and can never have the effect to enlarge or diminish the operative words of a reissued patent.

Patents are public grants, and every person claiming any right under such an instrument must show that the right claimed is secured by the instrument; nor can he be benefited by showing that the right claimed was secured by a surrendered patent, unless the reissued patent also secures the same.

Viewed in the light of these suggestions, it is clear that the rights of the complainant in this case depend solely upon the last-mentioned reissued patents, which are the patents mentioned in the bill of complaint, and which, it is alleged by the complaint, that the respondents have infringed.

Defenses of various kinds are set up by the respondents to the allegations of the bill of complaint, as follows: (1) That the complainant is not the original and first inventor of the improvements described in the said several patents mentioned in the bill of complaint. (2) They deny that the said new patents were issued in good faith, and they allege that said reissued patents are not for the same invention as that described and embodied either in the original patent or in the prior reissues of the original patent. (3) That the five last-mentioned reissued letters patent are severally invalid in law and void and of no effect, and that they do not confer any such right or monopoly to the complainant as he alleges and pretends to claim.

Enough has already been remarked to show that the original patent was a combination of old ingredients by which

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the described result was effected; or, in other words, that the patented invention consisted in a new combination of the described ingredients, every one of which was proved to be old. Old ingredients are not the proper subjects of letters patent in any other form than as a combination, for the plain reason that nothing is the proper subject of a patent which is not both new and useful.

Reissued patents must be for the same invention as the original, and that condition is just as applicable to a second reissue as to the first; nor is the second reissue relieved in any respect from the full force of that condition in a case where the invention in the reissue is divided into several parts.

Undoubtedly, a new and useful combination consisting of old ingredients may be the proper subject of letters patent, if the combination produces a new and useful result; but the act of Congress does not authorize the patentee to surrender such a patent and to reissue the same for the separate ingredients, for the plain reason that the ingredients are old; and for the additional reason that a patent for a separate ingredient is not the same as the combination of several ingredients. *Gould v. Rees*, 15 Wall. 194 [9 Am. & Eng. 39].

Authorities to support these propositions are unnecessary, as they are self-evident; nor is it necessary to do more than refer to the several claims of the several reissues under consideration to show that every one of those reissues are invalid, both for the reason that the alleged improvement is old, and also for the reason that the invention embodied in each of the reissued patents is different from the one secured by the original patent. Even the court here admits that each one of those reissues is "for a distinct and separate part of the original invention alleged to have been made by the complainant," full proof of which is exhibited in the claims of the respective reissued patents. *Gill v. Wells*, 22 Wall. 1 [9 Am. & Eng. 471]. They are as follows:

23 Wall. 238-239.

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1. No. 1,036.—Appended to that patent is a claim much more comprehensive than is to be found in either of the four other patents, but it is plainly not a claim for a combination, nor one for the whole machine, as was admitted in argument by the complainant. What he there claims is a seed-planting machine constructed principally of framework, the front part of which is supported on not less than two runners, or shoes, with upward inclining edges, and the rear part is supported on not less than two wheels, the latter being arranged to follow the former.

Evidently that claim is not intended to cover the whole machine; nor would it benefit the complainant even if it could receive that construction, as it is not pretended that he was the original and first inventor of such a planting-machine, nor that the specification of the original patent professed to describe such an original invention. Machines of the kind have existed for a very long period before the date of the complainant's patent, even for a period whereof the memory of man runneth not the contrary.

2. No. 1,037.—Nothing is claimed in this patent except the construction of a shoe or runner for a seed-planting machine, with an upward inclining edge, with its points sufficiently raised so that it will climb up and over, or cut and break through intervening obstacles without materially forcing the earth laterally at its front part, and widening towards the rear end so as to open a furrow in which the seed to be planted may be deposited, and long enough to furnish a support to the framework of the machine. Explanations of that patent are certainly unnecessary, as it is plain that the claim is for distinct and separate ingredients of the combination embodied in the original patent.

3. No. 1,038.—Under this patent the complainant claims a hinged joint between the point of the tongue and the rear part of the machine in combination with a seed-planting machine, so that one part of the framework may be raised, lowered, adjusted and supported on the other part. Nor

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is any argument necessary to show that the claim of the patent is for one of the separate and distinct ingredients of the combination embodied in the original patent, all of which were confessedly old.

4. No. 1,039.—Two claims are made in this patent as follows: (1) The seat for the attendant, or, in the language of the claim, the mounting of the attendant upon the machine or seed-planter, wherein the seed dropping mechanism is operated by hand, in such a position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto. (2) He also claims a lever, in combination with a seed-planting machine, or its equivalent, by which the driver or second attendant may raise or lower that part of the framework that carries the attendant and the seeding devices.

Manifestly the lever or its equivalent is the principal subject-matter of that claim, reference being made to certain other parts of the seed-planter *merely* as a means of describing the functions to be performed by the lever, and the results to be attained by its use; nor does it require any argument to show that the lever is old, as it is matter of common knowledge that it was well known long before the original patent of the complainant was issued.

5. No. 1,040.—Two claims are also made by the patentee in this patent: (1) He claims a pair of auxiliary wheels and an axle, in combination with the seed-planting machine, carried mainly upon not less than two runners and two covering-wheels, for the double purpose of taking a portion of the weight off from the runners and the other wheels, and for affording means of readily converting the machine from a hand-planter to an automatic seed-sower. (2) He also claims hanging the axle of the auxiliary wheels in hinged or adjustable arms or levers, so that more or less of the machine may be placed upon the auxiliary wheels.

All necessity for any remarks upon those claims is su-

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perseded by the admission that they are not infringed by the respondents.

Four of the five reissues are included in the charge, and the complainant also charges that the respondents have infringed five other reissued patents held by him, which also secure to him the exclusive right to the respective improvements therein described, all of which appertain to the same machine for planting corn and smaller grains.

Reference will first be made to the original patent from which those several reissues are derived. Like the preceding reissued patents, these were all derived from a single original patent, issued May 8, 1855, as appears by the record, which it is claimed is an improvement upon the prior original patent.

Doubtless the patentee made some change in the original machine, as appears by the descriptive portion of the specification; as, for example, he enlarged the rollers, increased the length of the side-pieces, connected those pieces by cross-pieces, and constructed the frame in two parts, denominated front and rear, placing the long seat for the driver on the front end, in order that he may slide forward or back, to tilt the machinery when necessary to deepen the furrow, or to raise the front of the shoes from the ground, as occasion calls for such a movement; but he invented no new ingredient or device, nor did he introduce any element into the machine which was not previously well known, all of which will sufficiently appear from the claim when compared with the drawings, without reproducing the details of the specification annexed to the patent. It contains but a single specification in that regard, which, in substance and effect, is as follows: what he claims is the runners, with their valves, in combination with the hoppers and their plates, together with the adjustment of the valves by means of levers and cams, and the driver's weight, for the purposes of carrying and dropping seeds by each vibration of the lever, and to regulate the depth of the planting.

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Tested by the description contained in the specification, it is not doubted that the patent was a valid one for the described combination, which, beyond all doubt, is composed of old ingredients. Regarded as an invention for a combination it may be regarded as an improvement upon the original invention described in the first-mentioned patent, but it is quite clear that it contains no devices except such as had long before been well known to mechanics.

Though operative and valid, still it was not satisfactory to the complainant, because not sufficiently effective to shut out other improvements for planting seeds. Accordingly, on the 10th of November, 1857, he surrendered the patent, and the same was, on the same day, reissued to him with a single claim, as follows: he claims the locating the seat for the driver in the rear of the supporting axle in combination with the hinged frames or hinged joint, so that as the driver moves forward or back, on his seat, the rear frame may act as a lever for lowering or raising the seed part of machine, and thus throw it into or out of the ground, as circumstances may require.

Probably it would be difficult to frame a claim which would more exactly embody the true nature of the actual improvement, but still it was not satisfactory to the complainant, and on the 11th of December, 1860, he surrendered the patent, and the same was reissued to him in five separate patents, as follows:

1. No. 1,091.—Two claims are contained in this patent as follows: (1) The placing of both the driver and the person who operates the seed-slides or valves, in such a position on the seed-planter that each may attend to his particular duty without interfering with that of the other. (2) The so locating the seats or stands for those persons, in combination with the machine, that the weight of one of the persons may be used to counterbalance or overbalance the weight of the other, for the purpose of more readily raising or lowering the seeding apparatus.

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2. No. 1,092.—He claims in this patent the locating of the seat in the machine in such relation to a line drawn through the center of the wheels or ground supports that the occupant of the seat may, by moving himself or throwing his weight forward or backward on his seat, without the necessity of rising, walking or standing over or near the seeding devices, force the seeding apparatus into or raise it from the ground.

3. No. 1,093.—His claim in this patent is the so connecting of the parts between the fixed points in the described machine, that the portion of it carrying the seeding devices may be raised up out of the ground by the attendant riding on the machine and be carried by the tongue or horses' necks and the supporting wheels.

4. No. 1,094.—Wherein he claims a lock, block or stop, in combination with the machine, which prevents the rear part of the frame from descending so low as to strike the ground or inconvenience the occupant of the seat upon the rear portion of the frame.

5. No. 1,095.—His claim in this patent is for a valve or slide in the seed-hopper and a valve in the seed-tube, so combining with a lever operating both, that a half-motion of the lever by the operator riding on the machine, shall open and close the seed-passages at regular periods and pass only the right quantities.

Most of these ten reissued patents are for a single ingredient of the combinations described in the two original patents, and every one of the others is for a separate and distinct part of one or the other of those combinations; and the rule of decision set up by the complainant is, that he may mass these several patents just as if the several ingredients were all described in one patent embracing a claim for a combination of each and every of the respective ingredients included in these ten several patents. Such a theory, in my judgment, is simply absurd, and it is certain

Dissenting opinion.

that it finds no support in any decided case nor in any treatise upon the rules and practice in patent cases.

Argument to show that such is the theory of the present suit is scarcely necessary, as it is plainly shown in that part of the bill of complaint which alleges that the improvements and inventions contained in those several letters patent constitute separate parts of an entire machine for seed-planting, and that they may be constructed for use and used in one machine in that department of agriculture; and the complainant charges that the respondents have constructed machines and used the same, and vended the machines to others to be used, in imitation of all those improvements and inventions except the improvement described in the reissued patent No. 1,040, which it is admitted is not infringed by the respondents.

All the ingredients described in those ten reissued patents are old, and it was admitted at the argument that no one of the patents contains a claim for a combination of the several ingredients described in the said several reissued patents, and that the case rests on the basis that the several claims or some of them are valid though not amounting to a combination.

Valid patents may be granted for a new combination of old ingredients, provided it appears that the new combination produces a new and useful result; but the invention in such a case consists entirely in the new combination, and any other party may, if he can, make a substantially different combination of the same ingredients, or he may use any number of the ingredients less than the whole, for the reason that the monopoly of the patent extends only to the combination and not to the ingredients separately considered. *Vance v. Campbell*, 1 Black. 428 [7 Am. & Eng. 117]; *Prouty v. Ruggles*, 16 Pet. 341 [4 Am. & Eng. 351].

Patents may also be granted for a machine or for a separate and distinct device, but it cannot be held that such a patent is valid unless it be proved that the patentee is the

Dissenting opinion.

original and first inventor of the thing patented. *Seymour v. Osborne*, 11 Wall. 516 [8 Am. & Eng. 290].

None of the separate devices patented in those reissued patents are new, and it being conceded that no one of the patents contains any such combination as that embodied in either of the original patents, it is clear in my judgment that the decree of the Circuit Court should be affirmed unless the theory that these several patents can be massed and be by judicial construction converted from patents for separate and distinct ingredients into one patent for a combination of all the ingredients described in the several patents mentioned in the bill of complaint.

Courts of justice cannot accomplish such an object by construction, nor in any other mode, for several reasons: (1) Because the province of construction is restricted to the ascertainment of the meaning of the language employed in the grant. (2) Because the object can only be accomplished by the surrender of these patents and by a reissue of the original patent, which is a matter within the exclusive jurisdiction of the Commissioner. (3) Because each of these patents is a separate and distinct grant. (4) Because the court in construing such a grant is restricted to the language employed by the granting power. (5) Because several patents for several separate and distinct devices do not in law amount to a patent for a combination and, therefore, cannot so be declared by a court of justice (*j*).

Mr. Justice MILLER and Mr. Justice DAVIS concur in this dissent.

23 Wall. 245.

(*j*) Wallace adds "The Chief Justice took no part in the judgment given in this case, the argument having been had before he was appointed. The case was held a long time under advisement, and the opinions were not given to the Reporter until long after the judgment was rendered."

Notes and Citations.

Notes :

2. Act 1836, sec. 7; Act 1839, sec. 11; Act 1870, sec. 48; R. S. sec. 4,911.
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3. An unsuccessful experiment will not defeat a subsequent patent:
Whiteley v. Swayne, 7 Wall. 685 [8 Am. & Eng. 70].
Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].
Smith v. Goodyear D. V. Co., 93 U. S. 486.
-

5. Conclusiveness of the question of fraud arising on the grant of a reissue :

Stimpson v. Railroad Co., 4 How. 380 [4 Am. & Eng. 898].

Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].

6. "Substantially as set forth," effect on construction of claim :

Winans v. Denmead, 15 How. 330 [6 Am. & Eng. 107].

Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].

Garratt v. Seibert, Bk. 21, L. ed. 956 [9 Am. & Eng. 161].

Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].

Hailes v. Van Wormer, 20 Wall. 353 [9 Am. & Eng. 340].

Lake Shore, &c., Railway Co. v. Nat. Car Brake Co., 110 U. S. 222.

Brown v. Davis, 116 U. S. 237.

Matthews v. Iron Clad Mfg. Co., 124 U. S. 347.

Weir v. Morden, 125 U. S. 98.

Telephone Cases, 126 U. S. 1.

Notes and Citations.

9. Failure to claim admits want of novelty ;
Rowell v. Lindsay, 113 U. S. 97.
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16. Frivolous claim defined :
Densmore v. Scofield, 102 U. S. 375.
-
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Patents in suit :

- No. 9,893. Brown, G. W. August 2, 1853. Seed-Planter.
Reissues Nos. 1,036, 1,037, 1,038, 1,039. September
11, 1860.
No. 12,811. Brown, G. W. May 8, 1855. Reissues Nos.
1,091, 1,092 1,093, 1,094, 1,095. December 11, 1860.
Seed-Planter.
-
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OTHER SUITS ON SAME PATENT :

Brown v. Selby, 1871. 2 Biss. 457; 4 Fish. 363.

Cited :

IN SUPREME COURT IN :

Rowell v. Lindsay, 1885. 113 U. S. 97; Bk. 28, L. ed. 906.
Parker & Whipple Co. v. Yale Clock Co., October, 1887. 123 U.
S. 87.

Notes and Citations.

IN CIRCUIT COURTS IN:

Albright v. Celluloid Harness Trimming Co., June, 1877. 2 Ban. & Ard. 629; 12 O. G. 227.

Herring v. Nelson, September, 1877. 14 Blatch. 293; 3 Ban. & Ard. 55; 12 O. G. 753.

Rubber Step Mnfg. Co. v. Metropolitan R. R. Co., March, 1878. 3 Ban. & Ard. 252; 13 O. G. 549.

Kerosene Lamp Heater Co. v. Littell, June, 1878. 3 Ban. & Ard. 312; 13 O. G. 1009.

Union Paper Bag Machine Co. v. Pultz & Walkley Co., August, 1878. 15 Blatch. 165; 3 Ban. & Ard. 403; 15 O. G. 423.

Atwood v. The Portland Co., July, 1880. 10 Fed. Rep. 283; 5 Ban. & Ard. 533.

Wilson v. Coon, December, 1880. 18 Blatch. 532; 6 Fed. Rep. 611; 19 O. G. 482.

Rowell v. Lindsay, March, 1881. 10 Biss. 217; 6 Fed. Rep. 290; 19 O. G. 1565.

Dederick v. Cassell, October, 1881. 9 Fed. Rep. 306; 20 O. G. 1233; 14 Phila. Rep. 503.

Putnam v. Hutchinson, April, 1882. 11 Biss. 233; 12 Fed. Rep. 127.

Abbott v. Hoole Mnfg. & Baggage Check Co., February, 1885. 31 O. G. 1561.

IN DECISIONS OF COMMISSIONER OF PATENTS IN :

Rouse & Stoddard, January, 1875. 7 O. G. 169.

Golding, July, 1875. 8 O. G. 141.

Casilear & McIntire, September, 1875. 8 O. G. 474.

Crompton, January, 1876. 9 O. G. 5.

Stephenson v. Goodell, June, 1876. 9 O. G. 1195.

Hanscom v. Latham, June, 1876. 9 O. G. 1157.

Huntley v. Smith, September, 1880. 18 O. G. 795.

Starr & Peyton v. Farmer, March, 1883. 23 O. G. 2325.

Notes and Citations.

Borden, January, 1884. 26 O. G. 439.

Firm, May, 1887. 39 O. G. 1199.

IN CANADIAN COURTS IN:

Withrow v. Malcolm, September, 1882. 6 Ontario Rep. 12.

IN TEXT-BOOKS:

2 Abb. Pat. Law, 1886, pp. 239, 300, 316, 343.

Merwin on Pat. Inv't., 1883, pp. 146, 212, 357, 627, 633, 673.

Syllabus.

WILLIAM MASON, APPELLANT, v. EDWARD H. GRAHAM ET AL.*

23 Wall. 261-278. Oct. Term, 1874.

[Bk. 23 L. ed. 86; 7 O. G. 833.]

Reversing *Graham v. Mason*, 4 Cliff. 88, and *Ibid.* 1 Holmes, 88.

Argued December 3, 4, 1874. Decided January 11, 1875.

Particular patent construed. Infringement. Estimation of profits.

1. Letters patent No. 30,441, of E. H. Graham, of October 16, 1860, reissued May 28, 1867, No. 2,626, for "Picker Staff Motion in Looms," construed to have no relation to the mere form of a journal-bearing arm, nor to consist in arranging a journal-bearing arm in a slot in the rocker, but to embrace every combination of a rocker with a bed and loose journal-bearing arms, arranged so as to produce the result described in the specification as effected by the combination, and *held* that defendant infringes inasmuch as he employs a combination of a rocker with a bed by loose journals projecting on each side of the picker-staff, and the combination is effected by means of a journal-bearing arm, it is immaterial that the form of his journal bearing arm is unlike that of complainant's, or that its mode of attachment is different, so long as it performs the same function in substantially the same way. (p. 117.)
2. Where defendant had been in the habit of selling the infringing picker-staff motion both separately and attached to looms, in ascertaining his profits upon those sold with the looms, regard should be had to his profits upon those sold separately, rather than to the aggregate profits made by him upon the loom and attachment combined. (p. 122.)
3. If defendant has cheapened the cost of producing the infringing device by an improvement of his own, he is entitled to a corresponding credit in the ascertainment of the profits which complainants are entitled to recover. (p. 124.)

*See Explanation of Notes, page III.

Statement of the case.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

The case is stated by the court.

The specifications and drawings of Graham's reissued letters patent are as follows :

EDMUND H. GRAHAM, OF MANCHESTER, NEW HAMPSHIRE, AND WANTON ROUSE, OF TAUNTON, MASSACHUSETTS, ASSIGNEE OF EDMUND H. GRAHAM.

Letters Patent No. 30,441, dated October 16, 1860 ; Reissue No. 2,367, dated October 2, 1866 ; Reissue No. 2,626, dated May 28, 1867.

IMPROVEMENT IN PICKER-STAFF MOTION FOR LOOMS.

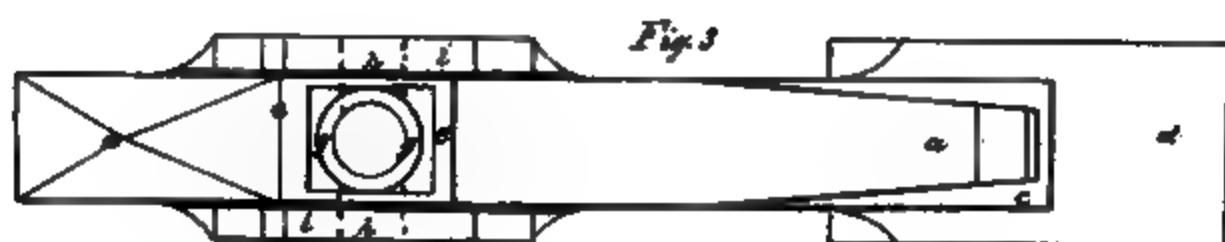
The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that Edmund H. Graham, of Manchester, county of Hillsborough, and State of New Hampshire, did invent certain new and useful improvements in Picker-Staff Motions for Looms ; and I, the said Graham, and I, Wanton Rouse, of Taunton, county of Bristol, and State of Massachusetts, (assignee of an undivided half part thereof, by assignment duly recorded in the United States Patent Office), do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which —

Fig. 1 represents a vertical central longitudinal section through so much of a picker-staff and its appurtenances, embracing said improvements, as is necessary to illustrate the invention.

E. H. Graham.
Picker-Staff Motion for Looms.
No 2626. *Reissued May 28, 1867.*



Witnesses
A. W. Brown
Frederic A. Jaxon

Inventor
Edmund H. Graham
by his atty
Edw. Lincoln

Statement of the case.

• Fig. 2 represents a central longitudinal horizontal section through the retracting spring of the picker-staff and its cylinder.

Fig. 3 is a plan or top view of Fig. 1.

In the devices commonly employed previous to the invention herein claimed for vibrating the picker-staffs of looms, the rapid motion necessarily communicated to the picker-staffs, in order to drive the shuttles with the requisite rapidity, soon causes a derangement and consequent "wabbling" of the parts, and necessitates frequent repairs, as it is essential that the motions of the picker-staff should be accurate.

The object of the improvement herein claimed is to produce an accurate and sure motion for picker-staffs by a combination of devices which, while giving great accuracy of motion, so guides and holds the picker-staff as to cause it to operate with the least possible friction and lateral disarrangement or wabbling.

In the accompanying drawings, *a a* represent a curved rocker, in the socket *b b*, of which the picker-staff is to be fastened. The rocker *a a* plays upon a horizontal bed *c c*, having a socket, *d*, through which the shaft of the loom passes in the usual way. The shank *e e* of the rocker *a a* is made hollow, or with a suitable box or bearing, *f f*, into which a shaft-arm or bar, *g g*, is inserted, which arm, by means of journals projecting each side thereof, has a bearing in the eyes *i i*, formed in the bed-piece *c c*. By this arrangement the rocker (in its reciprocating movement) is kept perfectly true in its bearings by the arm or bar *g g* which holds the rocker *a a* truly in position, in consequence of its long bearing therein; and as the arm or bar *g g* also oscillates freely upon its journals *h h*, which further serve to steady the rocker laterally, the rocker moves with the least possible friction, and with the greatest accuracy, so that the wear and tear is necessarily but very slight. The eyes or bearings *i* have inclined slots (shown in dotted lines in Fig. 1) cut in them so as to form ears or open

Statement of the case.

boxes, in which the journals *h h* are inserted when the parts of the picker-motion are put together. By this means the shaft or arm *g*, and its journals *h*, can readily be removed and replaced, and are free to play without liability to work out of their bearings. The rocker *a a* is retracted by means of a spiral spring, *k k*, wound loosely around a short shaft, *l*, and attached at one end to a plate, *m*, which turns freely on the shaft *l*. A strap, *n*, attached to the plate *m*, fits over a hook, *o*, on the under side of the rocker *a a*. As the spring *k k* is liable to partially lose its force by the motions of the rocker *a a*, I have provided for this contingency by forming in the plate *m* a series of holes, *p p*, into which successively one end of the spring *k k* is set, as fast as it loses its elastic force, whereby the spring can be set up at pleasure, and its force graduated, without the necessity of frequent repairing or renewals.

The first part of this invention relates to the position of the journals. This position is determined by the position of the socket for the picker-staff, which socket is so placed that the point of the picker-staff which strikes the shuttle must move in the required line; and this part of the invention consists in placing the journal at or near this socket, and as near the level of the bed as practicable. In this position there is the least possible wear, and the journals perform all their functions to the best possible advantage. It is obvious that as every point upon the rocker varies its position in the action of the motion, with reference to the bed, it is impossible to connect the journal directly with the rocker, and its box directly with the bed, or *vice versa*; one or the other must be indirectly connected; and it is for this reason that in the motion described the journals are placed upon the arm *g*, upon which the rocker can play up and down. So far as we know, no rocker has ever been combined with its bed by means of journals before this invention.

The second part of this invention consists in forming the boxes, or bearings for the journals, with such an opening

Argument of counsel.

that the journals may be laid in them in putting the motion together, without liability to work out in the operation of the rocker, as plainly shown in the drawings. This method of construction is much cheaper than making the boxes cylindrical, and is quite as efficient in every respect.

What is claimed as the invention of the said Graham, is—

1. The combination of a rocker of a picker-staff with its bed by loose journals, projecting each side of the picker-staff, and arranged beneath the picker-staff, substantially as described.

2. In combination with the rocker, the bed, and the journals, the open boxes, substantially as and for the purpose described.

3. In combination with the rocker and its bed, the journal-bearing arm, operating substantially as and for the purpose specified.

EDMUND H. GRAHAM,
WANTON ROUSE.

Witnesses :

A. F. JEWETT,
J. E. MAYNADIER.

Messrs. J. G. Abbott, C. M. Keller, C. F. Blake, and B. Dean, for appellant :

Each of the three claims of Graham's reissued patent, when carefully considered, relates to the manner of combining the rocker of the picker-staff with its bed—the first by loose journals projecting each side of the picker-staff, the second by the journals and the open boxes, and the third by the journal-bearing arms.

It is respectfully submitted that either of the three claims are each in succession a mere repetition of the same combination.

The journal-bearing arm is the key to the construction of the patent.

What kind of a journal-bearing arm is it ?

It is an arm which slides in a hollow place in the rocker

Argument of counsel.

as the rocker moves up and down on the bed. It slides in and out of this hole or hollow, thus lengthening and shortening the picker-staff after the fashion of a telescope.

This is the arm which has journals which fit into the open boxes beneath it.

All the claims refer to the mechanism "as substantially described," and there is no other device substantially described.

In this combination of devices the journal-bearing arm is the most prominent. It is the only new thing, unless it may be the open boxes, described (and open boxes are common, every loom is full of them). Take out this peculiar arm, and the open boxes described would prevent the *rockers from moving at all*.

True it appears that the proof of the existence of any journal or box-bearing arms before the plaintiff's patent, limits their patent to the specific kind of arm that necessarily limits the claim of open boxes to the open boxes as described, and the combination to the combination of specific devices.

Picker-staff motions form but a small part of a loom, and the appellant therefore claims that as these picker-staves are parts of looms and integral therewith, this class of patents should be treated as patents for improvements in looms, which they really are, for the loom is the unit.

The master finds that the picker-staves were made fifty cents cheaper than the respondent's picker-staves, and the same amount cheaper than those before that made by himself; that they were made under a patent granted to himself; and that "the difference in the cost of manufacture was due to his invention." It follows that he received no profits from the use of the respondent's patent. That is the measure of his liability to the respondent.

Mowry v. Whitney, 14 Wall. 620 [9 Am. & Eng. 1]; Cowing v. Rumsey, 8 Blatch. 39; Livingston v. Woodworth, 15 How. 544 [6 Am. & Eng. 167]; Serrell v. Collins, 1 Fish. 289

Argument of counsel.

In *Livingston v. Woodworth* it was distinctly held that the right of the plaintiff's recovery was limited to the profit the defendant actually did realize.

Mr. J. E. Maynadier, for appellees :

Graham was the first to make a practically operative rocker motion in which the rocker and bed were connected together by means of journals and journal-boxes, substantially as described in his patent.

Considered generally it is not disputed that appellant's motion is *precisely* like that described in appellee's patent in these respects, viz.: (1) Each consists of three main parts or pieces—the rocker, the bed, and a third piece whose office it is to hold the rocker properly upon the bed. (2) The rocker and the bed are the same in each.

The only other question then is—whether this third piece in appellant's motion in the substantial equivalent of the third piece in the reissue.

On this question the court below says: “Practically the only question in the case as to infringement is, whether the model exhibited in the proofs as representing the picker-staff motions made and sold by the respondent, is substantially the same, or substantially different, from the mechanism described and claimed by the complainants in their reissued patent, as the respondent concedes that he has made and sold picker-staff motion, so called, corresponding with that exhibit. The main purpose of the mechanism described in the reissued patent was to compel that part of the picker-staff which strikes the shuttle to move in the required plane without wobbling or lateral oscillation and it is obvious that the device made and sold by the respondent was constructed to accomplish the same purpose in substantially the same way. Attempt is made to show that the means employed are substantially different, but the court is not able to concur in that proposition.”

“On the contrary, we find that the mechanism of the respondent's device is substantially the same as that de-

Argument of counsel.

scribed in the specification of the reissued patent, and we are unable to see that the mode of operation is different in any material respect. Some of the elements of the device are different in form, but they are not new, and it is clear that they perform the same function as the corresponding parts do in the complainants' device. * * *

Infringement depends not so much upon the form of the particular device in question, or upon the name given to it in the specification, as upon the functions it performs, and it is well settled law that if one device is employed in a similar combination as another, and performs the same function in the same way, the two are substantially the same, although they may be different in form, and may be known among mechanics by different names."

It was proved on behalf of the appellees that "the general selling price" of motions per pair was \$2.00,—that the cost was 91 cents per pair; and it was urged before the master that on these facts the appellees were entitled to recover \$1.09 per pair on each pair, as to which it did not appear from the evidence that the profit was in fact more or less.

But as to the great bulk of motions sold, viz: 3,639 pairs, there is no evidence showing affirmatively that they were sold for less than "the general selling price." The profit actually made on any one pair of these 3,639 pairs, "mingled with" the profit resulting from the manufacture of the loom on which that pair was sold; but does this show that this pair was sold for less than "the general selling price, \$2.00 per pair?"

When the appellees had established by proper evidence that "the general selling price" was \$2.00 per pair, was it not a just legal inference that these 3,639 pairs were sold at this price, until the contrary appeared? And it is certain that the contrary nowhere appears,—there is no evidence even *tending* to show it.

The appellees do *not* contend that it follows conclusively from proof that the general selling price was \$2.00 per pair,

Opinion of the court.

and that the cost was 91 cents per pair, that the profits on these 3,639 pairs amounted to \$1.09 per pair. But they do respectfully submit that on these facts uncontrolled,—(and they submit that the fact that these motions were sold on looms, etc., does not in any way control these facts,) the correct conclusion is that each of these 3,639 pairs was sold at the general selling price, and consequently that the profit on each was \$1.09.

The fact that appellant used “a pattern of his own devising,” and that it cost him fifty cents less to manufacture motions after this pattern than after the pattern of Exhibit No. 3, (which is the kind that both plaintiff and defendant were making when appellant commenced to manufacture those called “bridle-motions” in the master’s report), can have no tendency whatever to show that appellant made no profits whatever; nor that the master erred in finding that appellant had made a profit of not less than fifty cents per pair on all motions sold on looms.

Mr. Justice STRONG delivered the opinion of the court :

The object of the invention patented to the complainants in the court below was, to produce an accurate and sure picker-staff motion in looms by a combination of devices which, while giving great accuracy of motion, so guides and holds the picker-staff as to enable it to work with the least possible friction and lateral disarrangement. In all picker-staff motions it is desirable, if not essential, that the end of the staff made to strike the shuttle should move in a right line, so as to drive the shuttle directly along the shuttle race in the line in which it is desired to play. This has been effected by constructing the lower end of the staff in the form of a rocker, the exterior curve of which is an arc of a circle described from a center corresponding with that point in the shaft that strikes the shuttle. This rocker is made to roll on a bed, the face of which is extended parallel to the shuttle race, and which is placed on the out-

Omitted in Wall.

Opinion of the court.

side of the loom beneath the lay. How to connect the rocker with the bed, so that the picker-staff may be maintained in proper position upon the bed, has been a subject of much inquiry. Various modes had been suggested before the complainants obtained their patent, and several of these modes had been described in patents for improvements in looms granted to other inventors. The invention described in the patent to the complainants relates to such a connection. It is primarily a combination of a rocker with a bed, by means of loose journals projecting each side of the picker-staff and arranged beneath it, substantially as described in the specification. As in other arrangements for picker-staff motions, the rocker is made to play upon a horizontal bed parallel to and below the shuttle race, and the bed has a socket passing longitudinally through its base for the passage of the shaft of the loom. The shank of the rocker is made hollow, that is, with a box or bearing extending through its tread upwards into which a shaft arm or bar is inserted. This bar or shaft arm is fitted with journals projecting on each side at right angles with the rocker and resting in eyes formed in the bed-piece which constitute the journal bearings. The eyes have inclined slots cut in them so that they form ears or open boxes into which the journals are inserted when the parts of the picker-staff motions or the constituents of the combination are put together. Thus, the shaft and the journals can readily be removed and replaced, and the journals are free to play without working out of their bearings. The rocker is retracted and caused to move by means of a spiral spring wound loosely around a short shaft below the bed, and attached at one end to a plate which turns freely on the shaft; and the plate is connected by a strap with a hook extending from the under side of the rocker or the lower end of the shaft arm. This seems to be a sufficient description of the combination. The pat-

Opinion of the court.

entees, after having described the drawings of their specifications, say :

“The first part of this invention relates to the positions of the journals. This position is determined by the position of the socket for the picker-staff, which socket is so placed that the point of the picker-staff which strikes the shuttle must move in the required line ; and this part of the invention consists in placing the journal at or near this socket, and as near the level of the bed as practicable. In this position there is the least possible wear, and the journals perform all their functions to the best possible advantage. It is obvious that, as every point upon the rocker varies its position in the action of the motion with reference to the bed, it is impossible to connect the journal directly with the rocker, and its box directly with the bed, or *vice versa*. One or the other must be indirectly connected, and it is for this reason that, in the motion described, the journals are placed upon the arm *g*, upon which the rocker can play up and down. So far as we know, no rocker has ever been combined with its bed by means of journals before this invention.

The second part of this invention consists in forming the boxes or bearings for the journals with such an opening that the journals may be laid in them in putting the motion together without liability to work out in the operation of the rocker, as plainly shown in the drawings. This method of construction is much cheaper than making the boxes cylindrical, and is quite as efficient in every respect.”

The claims made in the specifications are :

“1. The combination of a rocker, of a picker-staff with its bed, by loose journals projecting each side of the picker-staff, and arranged beneath the picker-staff substantially as described.

2. In combination with the rocker, the bed and the journals, the open boxes substantially as and for the purpose described.

Omitted in Wall.

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3. In combination with the rocker and its bed, the journal-bearing arm, operating substantially as and for the purpose specified."

(a) By the arrangement thus described and claimed, it is manifest (b) the rocker is prevented from sliding perceptibly on its bed and it is kept true in its bearings by the arm or bar from which the journals are projected, the arm having also a long bearing in the box of the rocker. The journals, moreover, having bearings in the ears of the bed, steady the rocker, resist any lateral movement, and prevent what is denominated as "wabbling." As the picker-staff is made to oscillate, its rocker rises and sinks upon the arm, and thus most of the friction caused by the play of the staff comes upon the shaft, or journal-bearing arm, and not upon the tread of the rocker or the bed-plate (c).

Such is the invention patented to the complainants in the reissued patent. Such are the results obtained by it, and such is its mode of operation (d). We think the invention has no relation to any mere form of a journal-bearing arm. Nor do we think it consists in arranging a journal-bearing arm in a slot of the rocker. In our opinion it embraces every combination of a rocker with a bed and loose journal-bearing arms, arranged so as to produce the result described in the specifications as effected by the combination.

And we have been unable to perceive that the invention was anticipated by any of those devices which the defendant has given in evidence. (e) Of these, four only need be noticed. They are those described in the earlier patents granted to Benjamin Lapham, to David Barnum, to Rensselaar Reynolds and to William Stearns (f). We do not

23 Wall. 273-274.

(a) Wallace begins Opinion here.

(a) Wallace substitutes from a-b "By the arrangement described in Graham's reissued patent of 1867, and claimed as his invention, it is manifest that that part of the device called."

(c) Wallace omits from c-d.

(e) Wallace omits from e-f.

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propose to go into any critical examination of them. The case does not call for it. Of them all it may be said that while each has a rocker and a bed, no one connects the rocker with the bed by means of loose journals, or by loose journal-bearing arms, and no one of them obtains the beneficial results secured by the invention belonging to the complainants (*g*). In Lapham's invention there is one journal on the bed, and one the rocker; both on the same side of the picker-staff. Obviously this device could not prevent wobbling, or the sliding of the rocker on the bed. Barnum's invention has no journals, journal boxes or journal-bearing arms. Nor has the device of Stearns. In the Reynolds' patent the rocker is described as held to the bed by means of a strap fastened at one end to the under face of the rocker, and at the other, to a point in the groove of the bed-piece, in which the rocker rolls (*h*). It is but faintly claimed, if at all, that any of these patents describe the invention of the complainants. The defendant has used them rather as exhibiting the state of the art when the Graham and Rouse (*i*) patent was granted, and as requiring that patent to be construed to cover only a combination, of which a journal-bearing arm sliding vertically in a hollow place or box in the rocker, and having journals which turn in open boxes in the bed-piece, is an essential constituent. We think, however, they exhibit no such state of the art as requires that construction to be given to the patent, and we cannot perceive that such a construction is justified by the language of the specification and claims.

We come, then, to the inquiry whether the devices made and sold by the defendant are substantially the same as those patented by the reissued patent; or, in other words, whether the picker-staff motion made and

28 WALL. 274.

(*g*) Wallace omits from *g-h*.

(*i*) Wallace substitutes for "Graham and Rouse patent" "reissued patent in question."

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sold by the defendant is an infringement upon the complainant's right. Upon this question the opinions of the experts examined are in direct conflict, and we are, therefore, under the necessity of comparing for ourselves the two devices. We have already said that the object sought to be accomplished by the complainants' invention was the prevention of wobbling of the picker-staff, and compelling it to move steadily, without lateral deflection, in the required plane. It is not denied that exactly this is the object at which the defendant's motion is aimed. It remains, then, only to determine whether the means by which the intended result is obtained are substantially the same. That both the combinations connect the rocker to its bed by journals indirectly, employing an arm to effect such indirect connection, is made clear by inspection. In Mason's motion the arm is attached by a second journal, in the complainants' by a slot in the rocker. It is true the form and the location of the arms differ, but they perform the same functions, and in substantially the same manner. Both are journal-bearing arms. Both connect the journals, whether they are on the rocker or on the bed, indirectly with the bed in the one case, or with the rocker in the other. Each, then, is a combination of a rocker with a bed, by loose journals projecting on each side of the picker-staff, and the combination is effected by means of a journal-bearing-arm. That the form of the journal-bearing arm of the defendant's motion is unlike that of the complainants' or that its mode of attachment is different, is immaterial, so long as it performs the same function in substantially the same way. We are, therefore, of the opinion that the defendant's picker-staff motion must be considered as practically the same as that patented to the complainants, and, therefore, that the charge of infringement is sustained. The circuit court then correctly ordered that the defendant should account.

But we think there was error in the ascertainment of the

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profits with which he was charged. The master to whom the statement of the account was referred reported that the defendant had made and sold three thousand six hundred and thirty-nine pairs of the infringing motions as a part of looms manufactured in his establishment, and that the profits resulting from the manufacture and sale of such motions had mingled with the profits from the manufacture of looms. He further reported that the cost of making the looms including the motions was \$59.63; that the cost of making the motion was forty-five and one-half cents each, or ninety-one cents for each loom; and that the profits resulting from the manufacture of each loom, including the pair of motions, was \$5.64. Assuming these to be the facts the appellant insists that he should have been charged with only eight cents and six-tenths of a cent as the profit made by him on each pair of motions, that bearing the same proportion to \$5.64, the whole profit on the looms, which ninety-one cents, the cost of a pair of motions, bears to \$59.63, the cost of the entire loom with the motions. To this we cannot assent. It appears from the master's report that the defendant sold four hundred and fourteen pairs, separately from the looms, at \$2 per pair, and two hundred ninety-seven and one-half other pairs for \$534.75. These sales furnish a much better measure of profits than is a ratable proportion of the profits on an entire loom. It may fairly be presumed from them that the profits on the sale of looms, with the motion attached, were increased by the infringing device quite as much as was the profit on the motions sold separately. It does not appear at what profit, if any, the looms could have been sold without the picker-staff motion attached.

But the master further reported, that the defendant made the infringing motions after a pattern of his own devising; that they cost per pair fifty cents less than the picker-staff mechanism which he had immediately before put upon his looms; that they were made under a patent

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granted to him, and that they cost about fifty cents less than the motions made by the plaintiffs, the difference in the cost being due to his invention. If this is so, it is clear that the fifty cents saved on each pair, equivalent to fifty cents profit, is not due to the complainants' invention. Were it not for defendant's improvement the cost of making a pair of motions would have been, not ninety-one cents, but ninety-one plus fifty cents, or \$1.41, and the profits on each pair would have been fifty-nine cents, instead of \$1.09 charged to the defendant. Manifestly the complainants are not entitled to the savings or profits resulting from the defendant's own invention.

The defendant, therefore, has been charged by the master's report, confirmed by the court, too much for the profit derived from the sale of four hundred and fourteen pairs of motions sold separately from the looms, and from the sale of two hundred and ninety-seven and one-half motions, also sold separately from the looms. For the former he should have been charged \$243.26, instead of \$451.26, and for the latter \$175.52, instead of \$263.

We think, also, that the defendant has been excessively charged, for the profits made by him on the three hundred and forty-six beds and the one thousand five hundred and forty-eight rockers sold by him at various times, for the repair of bridle motions previously made. He has been credited with the cost only, without reference to the fact that the cost was reduced by his own invention. The complainants have not shown how much the cost would have been, had the defendant made them without employing his own improvements. Under such circumstances, it appears just to assume that but for the improvement of the defendant the cost of making the bed would have been forty-two cents instead of twenty-seven and two-tenths, and the cost of making the rockers would have been nineteen and two-tenths cents instead of twelve cents and four mills, as reported by the master. The consequence of this

Notes and Citations.

is that the profit on the three hundred and forty-six beds sold was only \$167.68, and the profit on the fifteen hundred and forty-eight rockers sold was only \$471.49.

The decree, therefore, should have been in favor of the complainants for :

1st. Profits on bridle motions sold on looms, . . .	\$1,819.50
2d. Profits on 414 pairs sold separately,	243.26
3d. Profits on 297½ pairs sold separately,	175.52
4th. Profits on the beds sold,	167.68
5th. Profits on the rockers sold separately, . . .	471.49
<hr/>	
Total,	\$2,877.45

A majority of the court is of opinion that the appellant is not entitled to a credit for the \$1,000 paid on the 25th of October, 1869, for which a receipt was then given.

The decree of the Circuit Court is reversed and the case is remitted, with instructions to enter a decree in favor of the complainants against the defendant for \$2,877.45, with costs of suit in the court below. Each party to pay his own costs in this court.

23 Wall. 277-278.

Patent in suit :

No. 30,441. Graham, E. H. October 16, 1860. Reissue
No. 2,626, May 28, 1867. Picker-Staff Motion for
Looms.

Notes and Citations.

OTHER SUITS ON SAME PATENT:

Graham v. Mason, 1869. 4 Cliff. 88; 5 Fish. 1.

Graham v. Mason, 1872. 1 Holmes, 88; 5 Fish. 290; 1 O. G. 609.

Cited:

IN SUPREME COURT IN :

Tilghman v. Proctor, 1888. 125 U. S. 136; Bk. 31, L. ed. 664.

IN CIRCUIT COURTS IN:

Railway Register Mnfg. Co. v. Bdwy. and 7th Ave. R. Co., February, 1886. 26 Fed. Rep. 522; 34 O. G. 921.

Thompson v. Gildersleeve, February, 1888. 34 Fed. Rep. 43; 43 O. G. 886.

IN DECISIONS OF COMMISSIONER OF PATENTS IN:

Drawbaugh v. Blake, March, 1883. 23 O. G. 1221.

IN TEXT-BOOKS:

Walker on Pats., 1883, pp. 259, 491.

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Statement of the case.

AUGUSTIN J. AMBLER, APPELLANT, v. RODNEY
M. WHIPPLE ET AL.*

23 Wall., 278-283. Oct. Term, 1874.

[Bk. 23, L. ed. 127.]

Motion filed March 5, 1875. Decided March 29, 1875.

Rehearing. Imperfect record. Certiorari.

1. It is the well settled rule of this court that no rehearing is granted unless some member of the court who concurred in the judgment, expresses a desire for it, and not then unless the proposition receives the support of a majority of the court. (p. 129.)
2. A hearing had in this court on an imperfect record, where there was no laches or neglect for which the appellee should be held responsible in failing to examine and perfect the record before the hearing, the omissions in the record being material, would present a strong appeal for a re-argument. (p. 129.)
3. But where the facts which were of record in the court showed that the sufficiency of the transcript on which the case was heard had been a matter of careful consideration by counsel for petitioners, and that it was finally accepted and filed, and that for two years and a half it remained on the docket and no attempt to correct it by *certiorari* or otherwise was made, *held* that it could not be said in the face of these facts, even if the omitted parts of the record were material, that the appellee was without fault in failing to have it brought up; and the petition for rehearing was denied. (p. 131.)

Appeal from the Supreme Court of the District of Columbia.

On petition for rehearing.

This case was decided earlier in the present term, as reported in 20 Wall. 546 [9 Am. & Eng. 410]. Motion was now made by Mr. M. H. Carpenter, for the appellees, against whom decision had been rendered for a rehearing, on

*See Explanation of Notes, page III.

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the ground that the records upon which the case was heard were very imperfect; and affidavits were presented to explain away any appearance of laches on the part of the appellees, in not having the said records sooner corrected.

The case was first brought to this court in December Term, 1871. Mr. James Hughes then appeared for the appellee, and upon February 19, 1872, obtained an order dismissing the appeal because the appellants had failed to file the records required by the 9th Rule of the court. On March 1, 1872, Mr. B. F. Butler moved to strike out that order and to reinstate the case, and thereupon one week was granted to Mr. Hughes, at his request, to examine the transcript offered for filing, and on March 8, the time for such examination was extended to March 22, 1872. On the later date Mr. Paschal again made the motion to strike out the order of February 19, and to reinstate the case upon the docket, which motion was granted. Mr. Hughes having subsequently died, other counsel were substituted for the appellees, and the case remained on the docket until it was decided at the present term.

Mr. Justice MILLER delivered the opinion of the court:

It is the well settled rule of this court, to which it has steadily adhered, that no rehearing is granted unless some member of the court who concurred in the judgment, expresses a desire for it, and not then unless the proposition receives the support of a majority of the court. For this reason, and for the better reason that the pressure of business in the court does not permit it, no reply to the petition whatever is allowed from the other side or given by the court.

The petition for rehearing in this case presents some features which seem to require a departure from this rule. It states that the hearing in this court was had on an imperfect record, that a large part of the matter which was before the court below having been omitted in the transcript

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certified to this court, and it attempts to show by affidavits that (a) owing to the death of one counsel and the substitution of others (b) there was no laches or neglect for which the appellee should be held responsible in failing to examine and perfect the record before the hearing (c). A transcript of the parts of the record which were omitted in the first transcript accompanies the petition for rehearing (d).

If this statement be correct, and if the omissions in the transcript on which the case was heard are material to the decision of the case, it presents a strong appeal for re-argument; and we have, therefore, given a careful consideration to the very full petition for rehearing, and availed ourselves of its copious references to the original and supplemental transcripts.

But an examination of the proceedings in the case in this court sheds much light on one of the questions suggested in the affidavits (e). It appears that the appeal was docketed and dismissed February 19, 1872, because the record had not been filed within the time limited by the rule of the court. On the 1st of March a motion to set aside that order was made, when Mr. Hughes obtained time for one week to examine the transcript proposed to be filed, and it is within the recollection of the court, that this was on the ground that it was an incomplete record. On the 8th of March, he had an extension of time for this examination, to the 22d, which made three weeks allowed for that purpose, and on that day the order of dismissal was set aside and the case docketed on the transcript on which it was finally heard. The case was reached for argument at the October term of 1873, and continued without objection; and on the 15th of October, 1874, was passed until the 13th of November by consent, and heard on the 16th and 17th of that month (f).

23 Wall. 282.

(a) Wallace omits from a-b.

(c) Wallace omits from c-d.

(e) Wallace omits from e-f.

Opinion of the court.

These facts, which are of record in this court, show that the sufficiency of the transcript on which the case was heard had been a matter of careful consideration by counsel for petitioners, and that it was finally accepted and filed, and that for two years and a half it remained on the docket and no attempt to correct it by *certiorari* or otherwise was made. It cannot be said, in the face of these facts, even if the omitted parts of the record were material, that appellee was without fault in failing to have it brought up.

But we have no doubt that Mr. Hughes, who was an experienced and careful lawyer, was satisfied, as we are, from an examination of this additional transcript, that it was wholly immaterial to any issue in the cause.

(g) It consists of commissions to take depositions, orders fixing the time by extension or otherwise of taking testimony of rules upon the parties to do various things preparatory to a final hearing (h) which do not effect the merits of the case. It is filled with matter showing Ambler to have been drunk, vicious, negligent, and in contempt of the court, in the progress of the case. In short, if his cause was to be tried on his merits instead of the merits of his case, it shows enough, as the original record did, to defeat it.

All this is only in aid of the theory on which Whipple has rested his case and lost it, namely : that because Ambler was a very bad man, a drunkard and a convicted felon, that he, his trustee and partner, could take to himself all the benefit of Ambler's skill and labor, disregard his double relation as trustee and partner, and violate every principle which governs these confidential relations.

The only error of fact pointed out in the opinion of the court, which is sustained by the record, is that Ambler, instead of leaving Washington about the 20th of August, the date of the successful experiment, did not leave (i) until Sep-

23 Wall. 282-283.

(g) Wallace substitutes for from g-h "It consists of commissions, orders, and rules."

(i) Wallace inserts "the city itself."

Opinion of the court.

tember the 1st, a difference wholly without influence on the points decided.

We remain of the opinion that the decree of this court was right, and the petition for rehearing is denied.

23 WALL 283.

Syllabus.

HENRY J. REEDY, APPELLANT, v. GEORGE
SCOTT.*

23 Wall., 352-367. Oct. Term, 1874.

[Bk. 23, L. ed. 109; 7 O. G. 463.]

Submitted February 3, 1875. Decided February 15, 1875.

*Surrender of patent in order to reissue. Effect on prior suits.
Combination. Infringement. Arbitrator's decision. Record.
Presumption.*

1. The surrender of a patent to the Commissioner is an act which, in the judgment of the law, extinguishes it. It is a legal cancellation of it, and hence the patent can no more be the foundation for the assertion of a right, after the surrender, than could an act of Congress which had been repealed; and it has frequently been determined that suits pending which rest upon an act of Congress fall with the repeal of it. Antecedent suits depend upon the patent existing at the time they were commenced, and unless it exists and is in force at the time of the trial and judgment the suits fail. (p. 139.)
2. Where a suit in equity under a patent is pending at the time of the reissue, a supplemental bill setting up the reissued patent is not a proper pleading to revive such a suit as nothing can be recovered, either as damages or profits for the infringement of the surrendered patent. The infringement of the reissued patent becomes a new cause of action for which in the absence of any agreement or implied acquiescence of the respondent, no remedy can be had except by the commencement of a new suit. (p. 140.)
3. But where the complainant, having reissued his patent pending a suit, set up this fact in a supplemental bill, all the proofs in the case being taken thereafter, and neither the respondent nor the court below made any objection to the irregularity of the pleadings, the irregularity was also disregarded on appeal by the court. (p. 140.)

*See Explanation of Notes, page III.

Argument of counsel.

4. A combination of old elements is not infringed by a use of less than all of its elements. (p. 142.)
5. Arbitrators as well as courts are presumed to decide correctly until the contrary appears; and where the record failed to embody complainant's patent or any authentic description of the alleged infringing machine, it was presumed that the arbitrator construed the patent correctly and found correctly as to the alleged infringement. (p. 143.)
6. Where an agreement to arbitrate and submission in form were duly executed before the original patent was surrendered for reissue, and the question submitted was examined and decided by the arbitrator without objection from either party growing out of the surrender or reissue, which were shown not to have changed the substantial issue in the litigation, and complainant alleged in his supplemental bill that the reissue was for the same invention as that in the original patent, *held* that objection to the award founded on the surrender and reissue pending the arbitration would be disregarded. (p. 143.)

[Citations in opinion of the court:]

Moffitt v. Garr, 1 Black, 273 [7 Am. & Eng. 111]. p. 140.
Curt. Pat., secs. 342, 399. p. 140.
Gill v. Wells, 22 Wall. 1 [9 Am. & Eng. 471]. p. 142.
Gould v. Rees, 15 Wall. 187 [9 Am. & Eng. 39]. p. 142.
Vance v. Campbell, 1 Black, 427 [7 Am. & Eng. 117]. p. 142.
Prouty v. Ruggles, 16 Pet. 336 [4 Am. & Eng. 351]. p. 142.
Carver v. Hyde, 16 Pet. 513 [4 Am. & Eng. 367]. p. 142.
Brooks v. Fiske, 15 How. 212 [6 Am. & Eng. 15]. p. 142.
Stimpson v. R. R. Co., 10 How. 329 [5 Am. & Eng. 129]. p. 143.

Appeal from the Circuit Court of the United States for the Southern District of Ohio.

The case is stated by the court.

Messrs. George E. Pugh, E. E. Wood and Edwd. Boyd, for appellant:

I. The award of Mr. Fisher cannot be so construed, properly, as to impair or in anywise affect the rights of the complainant, in virtue of the letters patent as reissued. Those rights were not within the terms of the submission.

Opinion of the court.

Kyd. Awards, 1st Am. ed. 141, 142; Hill v. Thorn, 2 Mod 309; Brooke, Abr., Arbitrament, *pl.* 27 *et pl.* 50; Myers v. R. R. Co., 2 Curt. 28; S. C., 18 How. 246.

Effect of the reissue:

Battin v. Taggert, 17 How. 74 [6 Am. & Eng. 242]; Rubber Co. v. Goodyear, 9 Wall. 788 [8 Am. & Eng. 150]; Stimpson v. R. R. Co., 4 How. 380 [4 Am. & Eng. 398]; Blake v. Stafford, 6 Blatchf. 195; Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].

II. The supplemental bill was also a supplemental suit and, therefore, ought not by the decree to have been dismissed for a cause applicable only to the original bill.

Catton v. Carlisle, 5 Mad. 427; Candler v. Pettit, 1 Paige, 168; Woodworth v. Stone, 3 Story, 749; McGrath v. Balser, 6 B. Mon. 141, 142; see, also, Minnesota R. R. Co. v. St. Paul R. R. Co., 2 Wall. 609; S. C., 6 Wall. 742.

(No counsel appeared for appellee.)

Mr. Justice CLIFFORD delivered the opinion of the court:

Patents may be surrendered in certain cases in order to obtain a new patent for the same invention, with a corrected specification.

Surrenders of the kind take effect when the amended patent is issued, and from that time the original patent ceases to be operative as a franchise to vest in the patentee the exclusive right to make and use the invention, and vend the same to others to be used.

Such a patent, so reissued, together with the corrected specification, it is provided shall have the same effect and operation in law on the trial of all actions for causes *hereafter* arising, as though the same had been originally filed in such corrected form.

Surrendered patents cease to be operative when the new patent is issued; from which it follows that such a patent, after the surrender, is not the proper foundation for an ac-

Omitted in Wall.

Opinion of the court.

tion at law or of a suit in equity, to recover either damages or profits for the infringement of the invention.

Pending suits are defeated when it appears that the patent on which the suit is founded has been surrendered, nor is a supplemental bill setting up the reissued patent a proper pleading to revise such a suit in equity, as nothing can be recovered, either as damages or profits, for the infringement of the surrendered patent. *Moffitt v. Garr*, 1 Black, 273 [7 Am. & Eng. 111].

Reissued patents must be for the same invention as the original patent; but if the defense be that it is for a different invention, the original patent, though inoperative as a cause of action or to protect the rights of the inventor, is yet admissible in evidence to sustain or disprove such a defense; nor can it be doubted that it may be the subject of reference as to a repealed statute, to aid in the construction of the new patent issued upon the corrected specification.

Letters patent were granted to the appellant on the 9th of June, 1868, for an improvement in hoisting machines, which is therein represented to be new and useful, and of which improvement the appellant alleges that he is the original and first inventor. Such an inventor of such an improvement so secured by a valid patent, is entitled for the term specified to the exclusive right and liberty of making and using the invention and of vending the same to others to be used. Pursuant to the patent, he claims to enjoy that exclusive right, and he charges that the respondent below, without license and in violation of his exclusive right, has made, constructed, used and vended to others to be used, large numbers of hoisting machines, which are the same in principle and mode of operation as the invention secured to him in his patent, and he prays for an account and for an injunction.

Service was made, and the respondent having failed to appear, the court entered an order that the bill of com-
Omitted in Wall.

Opinion of the court.

plaint be taken as confessed. On motion to the court, however, it was subsequently ordered that the complainant have leave to file a supplemental bill, and that the decree *pro confesso* be set aside, and that the respondent may plead, answer or demur within thirty days. Under that leave, the complainant filed a supplemental bill, in which he alleges that he surrendered the original patent subsequent to the commencement of the suit, and that a reissued patent in due form of law was granted to him for the *same invention*, and he charges that the respondent since that time has made, constructed, used and vended to others to be used, his said invention, without license and in violation of his exclusive rights as secured by the reissued patent. Leave having been granted, the respondent appeared and pleaded in bar of the charge contained, both in the original and in the supplemental bills, that the parties after the original bill was filed entered into an arrangement in writing under their hands and seals, in which they stipulated to submit to Samuel S. Fisher, the question whether the machine manufactured by the respondent is or is not an infringement of the complainant's patent, and to abide his decision of the question; that if he decided that the machine of the respondent does infringe that of the complainant, the former agrees to abandon the manufacture of such machines and to make no more of the kind in the United States; that if the arbitrator decided that the machine of the respondent does not infringe that of the complainant, then the latter agrees that his bill of complaint shall stand dismissed at his cost, and that he will not molest the respondent in the manufacture of the machines; that the parties in pursuance of the agreement appeared before the person named as arbitrator and submitted the agreed question to him for his arbitration and decision; that the person designated by the parties consented to act as arbitrator, and that the parties having been fully heard by him, he made and published his decision and award

Omitted in Wall.

Opinion of the court.

therein in writing, wherein he found and decided in answer to the question submitted, that the machine manufactured by the respondent is not an infringement of the patent of the complainant for an improvement in hoisting machines.

Instead of demurring to that plea or tendering an issue to its allegation, the complainant, under leave, filed what he denominated "A further supplement to his original bill and amendment to his first supplement." By that pleading he admits that the parties agreed in writing to submit the whole question of infringement to the opinion of the arbitrator; that he, the arbitrator, drew up the agreement which they signed, but he avers that he did not understand that the agreement made the further prosecution of the suit dependent upon the opinion to be given by the arbitrator, and alleges that he executed it without consulting his solicitors in the suit, and without knowing the effect of the stipulation; that as soon as he became advised of the nature of the agreement, he called upon the arbitrator and informed him that he, the pleader, misunderstood the nature and effect of the agreement, and served him with a notice in writing revoking all authority and power given him by the instrument.

Still, he admits that the arbitrator did proceed in the matter of the reference and that he did make and deliver an opinion with respect to the infringement of the first claim of the original patent; but he alleges that the arbitrator did not make any award as to the second claim, for the infringement of which, as well as the first, the suit was brought; and he avers that the arbitrator did not award that anything should be done by the parties; that he was not notified of the sittings of the arbitrator, and that no opportunity was given him to call witnesses or to be heard in person or by counsel, and that neither the infringing machine nor any evidence of the same was introduced at the hearing.

Omitted in Wall.

Opinion of the court.

Responsive to those charges, the respondent refiled his plea to the original bill, and alleged that it is not true that the complainant signed the agreement without understanding its effect, nor that he revoked the power conferred before the arbitrator made and published his decision and award, nor that the complainant was not notified of the sittings of the arbitrator, nor that he was deprived of the opportunity to call witnesses or to be heard in person or by counsel.

Proofs were taken on both sides, and the parties having been fully heard, the circuit court entered a decree dismissing the bill of complaint, together with the supplemental bill; and the complainant appealed to this court.

Since the case was entered here, the complainant has filed the following assignment of errors:

(a) (1) That the Circuit Court erred in holding that the plea of the respondent was true and sufficient with respect to the matters alleged in the supplemental bill.

(2) That the said court erred in finding that the equity of the case with respect to the matters set forth in the supplemental bill is with the respondent.

(b) All necessity for any discussion of the charges contained in the original bill of complaint is superseded, as the assignment of errors does not impugn in that respect or call in question the correctness of the decision or decree of the Circuit Court. Such an assignment of errors, if it had been filed, would have been utterly unavailing, for the reason that the surrender of a patent to the Commissioner, within the sense of the provision, means an act which, in the judgment of law, extinguishes the patent. It is a legal cancellation of it, and hence the patent can no more be the foundation for the assertion of a right, after the sur-

23 Wall. 363-364.

(a) Wallace begins Opinion here, prefixing, "Mr. Justice CLIFFORD delivered the opinion of the court and after stating the case and making some general remarks, proceeded as follows: 'The following assignment of errors is the assignment made.'"

(b) Wallace inserts "In the case before us."

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render, than could an act of Congress which has been repealed, and it has frequently been determined that suits pending which rest upon an act of Congress fall with the repeal of it. Antecedent suits depend upon the patent existing at the time they were commenced, and unless it exists and is in force at the time of the trial and judgment, the suits fail. *Moffitt v. Garr* [7 Am. & Eng. 111]; *Curt. Pat.*, secs. 342, 399.

Where the patent expires and is extended pending the litigation, and the infringement by the respondent is continued in respect to the extended patent, a supplemental bill is a proper pleading to prolong the suit, as in that state of the case the complainant may well claim, if he is the original and first inventor of the improvement, to recover of the respondent the gains and profits made by the infringement, both before and subsequent to the extension, but the rule is otherwise where the original patent is surrendered, as the effect of the surrender is to extinguish the patent; and hence it can no more be the foundation for the assertion of a right than can a legislative act which has been repealed without any saving clause of pending actions. Consequently, the infringement of the reissued patent becomes a new cause of action for which, in the absence of any agreement or implied acquiescence of the respondent, no remedy can be had except by the commencement of a new suit.

Instances, however, may be found where, in such a case, the complainant sought his remedy in a supplemental bill, no objection having been made by the respondent, and such examples induce the court to disregard the irregularity in this case, inasmuch as neither the respondent or the court below appear to have regarded it as a matter of any importance. Instead of that the complainant was permitted to file his supplemental bill charging infringement as in case of an extended patent, and the respondent making no objection to the regularity of the bill, refiled the

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plea which he filed to the original bill of complaint, accompanied with a general denial of every material allegation contained in the supplemental bill, as subsequently amended by leave of the court. Subsequently the proofs exhibited were taken and, the parties having been heard, the court entered the aforesaid decree deciding the whole case, as more fully set forth on the record. None of the proofs were taken before the reissued patent was granted, nor until after the supplemental pleadings were completed.

These suggestions are sufficient to show that every irregularity, whether on the one side or the other, was waived before the decree of the Circuit Court was entered, and that both parties understood that the question submitted to the arbitrator was whether the machine manufactured by the respondent infringed the improvement invented by the complainant. Conclusive support to that proposition is found in the fact that both parties proceeded, throughout the trial in the Circuit Court, upon the legal ground that the reissued patent was for the same invention as that embodied in the original patent.

Reissued patents are required by law to be for the same invention as that secured by the surrendered patent, and the complainant expressly alleges in this case that his reissued patent is for the same invention as the surrendered original. Nor can the court take any other view of the case, as neither the original nor the reissued patent is made a part of the record. Clear proof is exhibited that the agreement to arbitrate and the submission in form were both executed before the original patent was surrendered, and that the submission had been signed and delivered before the complainant made any effort to revoke the instrument.

Sufficient has already appeared to show that the arbitrator examined the question submitted to him, and made an award that the machine manufactured by the respondent did not infringe the invention secured to the complainant

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in his original patent, and that he gave his reasons for the conclusion, which appear to be satisfactory as far as can be ascertained without the means of comparing the patent of the complainant with the machine of the respondent. Such a comparison cannot be made without such means, nor can the court look out of the record for means to make the comparison.

Attempt is made to avoid the force and effect of the award of the arbitrator, upon the ground that the complainant was misled in signing the agreement and that he was deprived of the opportunity to summon witnesses and to be heard in person or by counsel; but it will be sufficient to say, in response to those suggestions, that the proofs exhibited do not satisfactorily sustain the charges. On the contrary, enough appears to convince the court that the agreement is obligatory and that the complainant is bound to execute the agreement and to dismiss his bill of complaint and not to molest the respondent in the manufacture of his machine.

Substantial doubt cannot be entertained that the rule of decision adopted by the arbitrator is correct if he properly construed the patents. He found that the patent of the complainant was a combination of old ingredients, and that the machine manufactured by the respondent did not contain all of the ingredients embodied in the combination patented by the complainant. Nothing is exhibited in the record to show that the arbitrator erred in the construction of the patent, and if he did not and his finding as to the character of the machine manufactured by the respondent is correct, it is settled law that his decision is correct. *Gill v. Wells*, 22 Wall. 1 [9 Am. & Eng. 471]; *Gould v. Rees*, 15 Wall. 194 [9 Am. & Eng. 39]; *Vance v. Campbell*, 1 Black, 428 [7 Am. & Eng. 117]; *Prouty v. Ruggles*, 16 Pet. 341 [4 Am. & Eng. 351]; *Carver v. Hyde*, 16 Pet. 514 [4 Am. & Eng. 367]; *Brooks v. Fiske*, 15 How. 212

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[6 Am. & Eng. 15] ; Stimpson v. R. R. Co., 10 How. 329 [5 Am. & Eng. 129].

Arbitrators as well as courts are presumed to decide correctly until the contrary appears, and if the party desires that the decision of such a tribunal shall be re-examined by an appellate court he must see that the means for such a review is embodied in the record. Neither the patent of the complainant nor any authentic description of the machine manufactured by the respondent is contained in the record, and in the absence of such it must be presumed that the arbitrator construed the patent correctly, and that his finding in respect to the construction and mode of operation of the machine manufactured by the respondent is also correct.

Judging from the character of the assignment of errors, it is presumed that none of these views as applied to the matters alleged in the original bill are controverted, and the court here is of the opinion, in view of the previous explanations, that they are equally applicable to the matters alleged in the supplemental bill, for several reasons :

(1) Because the agreement to arbitrate and the submission in form were duly executed before the original patent was surrendered.

(2) Because the arbitrator proceeded to examine and to decide the question submitted, without any objection from either party, growing out of the surrender or reissue.

(3) Because the subsequent pleadings and proceedings in the suit show that the surrender and reissue did not have the effect to change the substantial issue in the litigation.

(4) Because the complainant alleged in his supplemental bill that the reissued patent was for the same invention as that embodied in the original.

(5) Because the agreement to dismiss the bill of complaint, if executed by a proper decree, must include all the subsequent appendages to it, and would be of itself a decision adverse to the complainant.

Decree affirmed.

Notes and Citations.

Notes :

1. Surrender of original in order to reissue cancels it:

Moffitt v. Garr, (Act 1836, sec. 13), 1 Black, 273 [7 Am. & Eng. 111].

Peck v. Collins, (Act 1870, sec. 53), 103 U. S. 660.

6. Surrender and reissue pending litigation:

Moffitt v. Garr, 1 Black, 273 [7 Am. & Eng. 111].

Littlefield v. Perry, 21 Wall. 205 [9 Am. & Eng. 446].

Meyer v. Pritchard, Bk. 23, L. ed. 961 [11 Am. & Eng. 35].

Mevs v. Conover, Bk. 23, L. ed. 1008 [11 Am. & Eng. 39].

Peck v. Collins, 103 U. S. 660.

Patent in suit :

No. 78,829. H. J. Reedy. June 9, 1868. Hoisting
Machines.

Cited :

IN SUPREME COURT IN:

Meyer v. Pritchard, 1877. Bk. 23, L. ed. 961 [11 Am. & Eng. 35].

IN TEXT BOOKS :

Walker on Pats., 1883, p. 428.

Oct., 1874.]

REEDY v. SCOTT.

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Syllabus.

THE TREMOLO PATENT.*

CHARLES M. TREMAINE ET AL., APPELLANTS, v. ALONZO HITCHCOCK ET AL., AND ALONZO HITCHCOCK ET AL., APPELLANTS, v. CHARLES M. TREMAINE ET AL.

23 Wall. 518-529. Oct. Term, 1874.

[Bk. 23 L. ed. 97; 7 O. G. 1055.]

Affirming Ibid. 9 Blatch. 385, and Ibid. 8 Blatch. 440.

Argued December 22, 1874. Decided January 18, 1875.

Amendment to bill. Reissue. Estimation of profits. Allowance of expenses.

1. Where the original bill set up only the first reissue of a patent that had been twice reissued, but the proofs both for final hearing and before the master on the accounting had reference to the second reissue, as also the proceedings on the master's report, an order of the court directing that the record be amended by inserting in the bill an averment of the second reissue was properly made, even after the final decree. (p. 149.)
2. An amendment which changes the character of a bill ought not, generally, to be allowed after a case has been set for hearing, and still less after it has been heard. The answer might become inapplicable if such an amendment were permitted. (p. 150.)
3. Where defendants were dealers in musical instruments and some of the instruments bought and sold by them contained a tremolo attachment which infringed complainant's patent, and others not, defendants were properly allowed, in the ascertainment of profits made by them from the sales, to prove the general expenses of their business incurred in effecting the sales of all musical instruments, and deduct a ratable proportion from the gross profits made by the sale of the attachments. (p. 151.)

* See Explanation of Notes, page III.

Argument of counsel.

Cross appeals from the Circuit Court of the United States for the Southern District of New York.

This was an action brought in the court below by Hitchcock, Saxe & Robertson, to recover damages for the alleged infringement of certain reissued letters patent granted to the complainants as assignees of one Carpenter, for a tremolo attachment to musical instruments. The bill charged that the defendants, who are dealers in musical instruments, had infringed this patent, and also asked for an injunction. The defendants, by their answer, denied that they had infringed, alleged that the supposed invention had been anticipated by prior use, and denied that the complainants had any title to the reissued letters patent on which the bill was brought. At the October Term, 1870, a decision was rendered in favor of the complainants and the cause was referred to a master to state the amount of profits. A report was made, exceptions were filed by the defendants, and the report was referred back with instructions. A new report was made, both parties filed exceptions, but all exceptions were overruled and the report confirmed. A final decree was entered, and the defendants appealed from the whole decree. The complainants appealed from so much of the decree as overruled the complainant's exceptions to the master's report.

The case further appears in the opinion.

Mr. Frederic H. Betts, for Hitchcock et al.:

To properly estimate the profits, regard must be had to the nature of the improvement in question, and the character of the business of the defendants in dealing with it. This improvement is not the fan by itself, but it is the combination of the fan with the organ in a specified location and relation. The business of the defendants was a general one. It was the sale of musical instruments. These organs were made by the manufacturers with and without the tremolo fans. The organ was complete without the fan, and it was optional with the defendant to procure it

Argument of counsel.

for sale or not. There was a profit, not only of the enhanced price received for the tremolo, but there was also a profit of much larger amount, beyond and besides this, on the organs themselves.

The complainants claim that, when the infringing device is an optional one and an extra price is charged and received for it when used, the true profit made is the extra sum received for the addition, only such expenses being allowed as are incurred by reason of the addition. If it be the fact, as it doubtless was, that the presence of the tremolo combination increased the sales of organs, so far from the tremolo combination being charged with anything on that account, it ought to be credited, not only with the difference between its cost and sale price, but also with the additional net profit on the whole instrument whose sale was thereby effected.

Seymour v. McCormick, 3 Blatchf. 225; S. C. 19 How. 96 [6 Am. & Eng. 282]; Whitney v. Mowry, 4 Fish. 145; Carter v. Baker, 4 Fish. 404.

Mr. B. E. Valentine, for Tremaine et al:

The court below decided that the letters patent No. 3,444, on which the bill was brought, had been surrendered by the complainants before they had brought their action; but the court went on to make the additional finding, that the complainants were the owners of letters patent No. 3,665, and that those letters patent were good and valid and had been infringed. The bill of complaint was not at that time amended so as to recite the new reissue, No. 3,665, nor was any such amendment asked for; but on the coming in of the master's report, the complainants applied for judgment against the defendants. The bill of complaint never contained the allegation as to reissue No. 3,665, prior to judgment. The defendants do not come into this court asking for a decision upon the validity of the complainants' invention as secured by the patent No. 3,665. Their record and proofs are not calculated to try

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the merits of the patent, and they desire not to prejudice the future consideration by this court of the said patent when it shall come before the court on a record calculated to test the merits of the alleged invention.

That the court below erroneously permitted the amendment of the bill, see, Equity Rules, 29 and 46; *Goodwin v. Goodwin*, 3 Atk. 370; *Walden v. Bodley*, 14 Pet. 160; *Snead v. McCoull*, 12 How. 422; *Smith v. Jackson*, 1 Paine, C. C., 490; *Donaldson v. Hazen*, Hemp. 423.

Mr. Justice STRONG delivered the opinion of the court:

The bill filed by the complainants in the court below set forth that "A patent for a tremolo attachment" to musical instruments was granted on the 27th day of June, 1865, to R. W. Carpenter; that, subsequently, the patentee assigned the letters patent to the complainant; that, on the 18th day of May, 1869, they surrendered the patent and obtained a reissue to themselves, numbered 3,444, and that the defendants had been guilty of infringing their rights under the patent. To the complaint thus exhibited the defendants answered, admitting the grant of the letters to Carpenter, but denying all knowledge as to the truth of the allegation that Carpenter had at any time assigned his interest to the complainants, or to any one or more of them and, *therefore*, denying that the complainant had any interest in the said letters patent or to the "*reissues*" of the same as set forth in the bill of complaint. The answer further averred that Carpenter was not the original inventor of the tremolo attachment, but that it was known and was in use before his alleged invention was made. Still further, the answer denied that the defendants had infringed upon the rights and privileges granted by the patent dated June 27th, 1865, "*or by any of the reissues of the same.*" To this answer a general replication was put in, and the parties went to trial, when the complainants gave in evidence without objection reissued letters patent No. 3,665, dated

Omitted in Wall.

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October 5, 1869, which had been granted on the surrender of the first reissue No. 3,444. This second reissue was not set out in the bill, but it is plain both parties supposed it was through all the progress of the trial. As we have noticed, the answer denied infringement, not of the single reissue mentioned in the bill, but of any of the reissues. No other than No. 3,665 was put in evidence. The decretal order to account expressly mentioned it. The evidence taken by the master under the order of reference, related solely to attachments sold by the defendants after the second reissue was granted. In the exceptions taken by them to the master's report, no intimation was made that the rights of the complainant under the reissue 3,665 were not on trial, and not even when the final decree was made was it suggested that the parties had been trying the case on an issue not made by the pleadings. Practically, indeed, the rights of the complainants under the second reissue and the defendant's infringement thereof, were in issue under the answer and the replication.

(a) We think, therefore, the order of the court directing that the record be amended by inserting in the bill an averment of the second reissue was properly made, under the circumstances of the case, though made after the final decree. It (b) deprived the defendants of no rights which they had not enjoyed during all the progress of the trial. It may well be denominated only an amendment of form, because it introduced no other cause of action than that which had been tried. It is true that an amendment which changes the character of the bill ought not generally to be allowed after a case has been set for a hearing, and still less after it has been heard. The reason is that the answer may become inapplicable if such an amendment be permitted. But in this case the defendants were not pre-

23 Wall. 527.

(a) Wallace begins Opinion here.

(b) Wallace inserts, "For practically the rights of the complainants under the second reissue, and the defendant's infringement thereof were in issue under the answer and the replication. The amendment.

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judiced. They had every advantage they could have had, if the bill had originally averred the second reissue. The case is undoubtedly anomalous, but we think justice would not be subserved by denying to the circuit court the power to order such an amendment as was made, after the cause was tried precisely as it must have been tried if the bill had originally contained the averment inserted by the amendment.

We come, then, to the errors assigned by the complainants. They relate to the estimate of profits reported by the master and confirmed by the court. The defendants were vendors of musical instruments, including organs and melodeons, which they purchased from the manufacturers. Some of these instruments contained the tremolo attachment, and others did not. For those containing such attachments they paid an additional price, and they sold them also for an increased price. In the ascertainment of the profits made by them from the sales, they were allowed to prove the general expenses of their business incurred in effecting the sales of all musical instruments, and deduct a ratable proportion from the profits made by the sale of tremolo attachments. It is of this allowance the complainants now complain. It is said the patent infringed was not for the tremolo itself, but for the combination of the organ and tremolo, and it is argued that if the defendants obtained an extra price for the organ combined with the tremolo without incurring any additional expense, the whole of that extra price was obtained from the addition of the combination. And it is further insisted that the true rule in cases like the present is, that if the infringing device is an integral part of the whole instrument, without which it is incapable of use, and for which a single charge is made, then, in ascertaining profits on a part of the organization, general expenses are to be apportioned according to the cost or by some other equitable rule. But when the infringing device is an optional one, used or not at pleasure,

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and an extra price is charged and received for it when used, the true profit made is the extra sum received for the addition, deducting only such expenses as are incurred by reason of the addition. We think such a rule, even if it may sometimes be just, is inapplicable to the present case. We cannot see why the general expenses incurred by the defendants in carrying on their business, such expenses as store rent, clerk hire, fuel, gas, portorage, etc., do not concern one part of their business as much as another. It may be said that the selling a tremolo attachment did not add to their expenses, and therefore, that no part of those expenses should be deducted from the price obtained for such an attachment. This is, however, but a partial view. The store rent, the clerk hire, etc., may, it is true, have been the same, if that single attachment had never been bought or sold. So it is true that the general expenses of their business would have been the same, if instead of buying and selling one hundred organs, they had bought and sold only ninety-nine. But will it be contended that because buying and selling an additional organ involved no increase of the general expenses, the price obtained for that organ above the price paid was all profit? Can any part of the whole number sold be singled out as justly chargeable with all the expenses of the business? Assuredly, no. The organ with a tremolo attachment is a single piece of mechanism, though composed of many parts. It was bought and sold as a whole by the defendants. It may be said the general expenses of the business would have been the same if any one of these parts had been absent from the instrument sold. If, therefore, in estimating profits, every part is not chargeable with a proportionate share of the expenses, no part can be. But such a result would be an injustice that no one would defend. We think it very plain, therefore, that there was no error in the rule adopted for the ascertainment of the profits made by the defendants out of their infringement of the complainants' patent.

Notes and Citations.

We think also the master's report, confirmed by the court, was correct in its ascertainment of the general expenses. At least there is nothing before us to show that it did not conform to the second decretal order. The defendants submitted analyses of their books, from which it is to be presumed the master distinguished general from particular expenses.

It follows that neither the appeal of the defendants nor the cross appeal of the complainants can be sustained.

The decree of the Circuit Court is affirmed; and it is ordered that the costs of each appeal be paid by the appellants.

33 Wall. 539.

Patent in Suit:

No. 48,366. Carpenter, R. W. June 27, 1865. Reissue
No. 3,665. October 5, 1869. Tremolo.

OTHER SUITS ON SAME PATENT:

Hitchcock v. Tremaine, 1871. 8 Blatch. 440; 4 Fish. 508.
Hitchcock v. Tremaine, 1872. 9 Blatch. 385; 5 Fish. 310.
Hitchcock v. Tremaine, 1872. 9 Blatch. 550; 5 Fish. 537; 1 O. G.
633.
Saxe v. Hammond, 1875. 1 Holmes, 456; 1 Ban. & Ard. 629;
7 O. G. 781.

Cited:**IN SUPREME COURT IN:**

Hardin v. Boyd, 1885. 118 U. S. 764; Bk. 28, L. ed. 1141.

Notes and Citations

Graffam v. Burgess, 1886. 117 U. S. 180 ; Bk. 29, L. ed. 839.

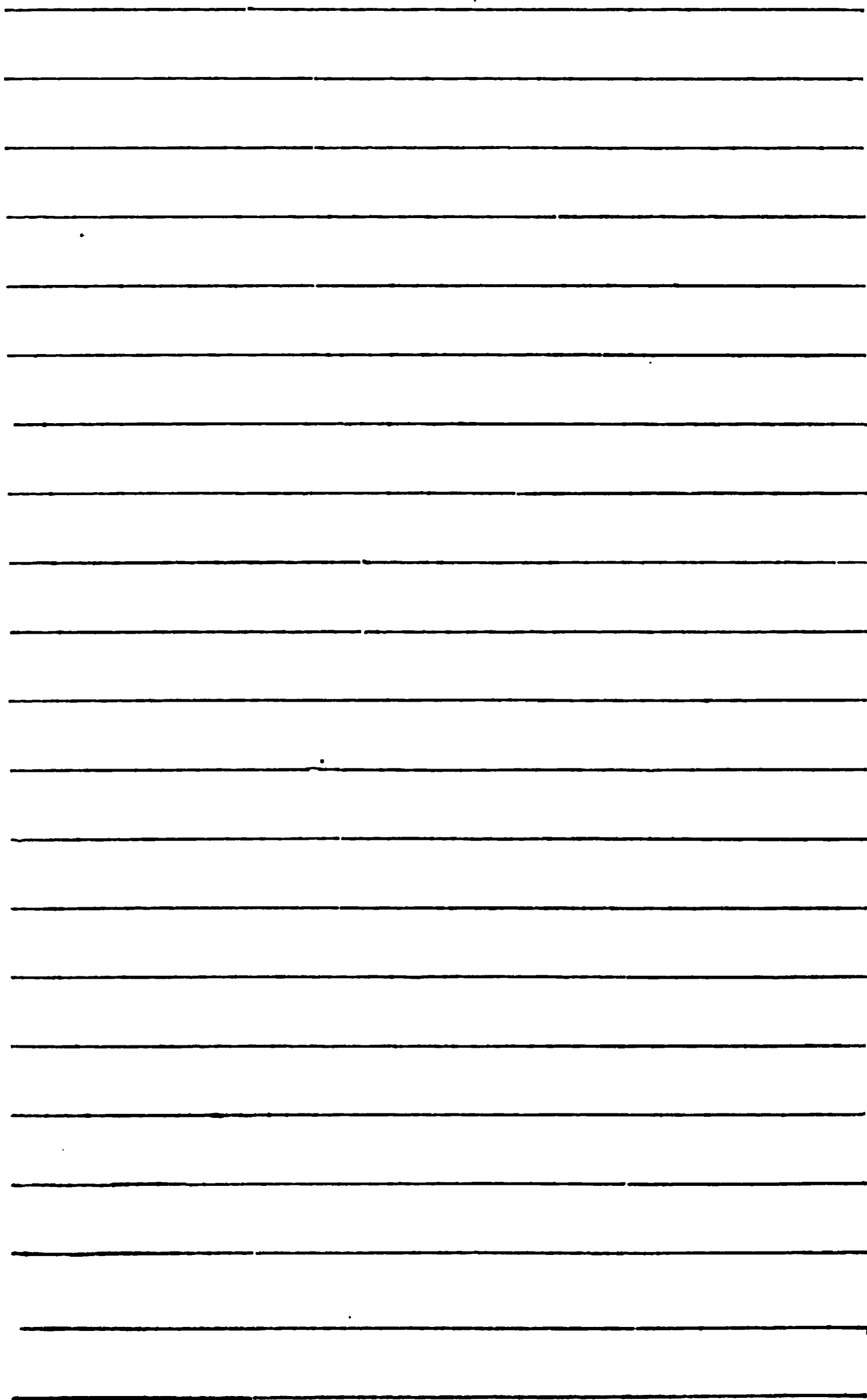
Tilghman v. Proctor, 1888. 125 U. S. 136 ; Bk. 31, L. ed. 664.

IN CIRCUIT COURTS IN :

Brady v. Atlantic Works, October 1878. 3 Ban. & Ard. 577; 15 O. G. 965.

New York Grape Sugar Co. v. Buffalo Grape Sugar Co., June, 1884. 22 Blatch. 182; 20 Fed. Rep. 505.

Reay v. Berlin & Jones Envelope Co., March, 1887. 30 Fed. Rep. 448.



Syllabus.

THE UNION PAPER COLLAR COMPANY APPELLANT, v. ISAAC VAN DEUSEN ET AL., Partners as VAN DEUSEN, BOEHMER & Co.*

23 Wall. 530-566. Oct. Term 1874.

[Bk. 23, L. ed. 128 ; 7 O. G. 919.]

Affirming *Ibid.* 10 Blatch. 109.

Argued March 5, 1875. Decided March 29, 1875.

Purpose of reissue. Conclusiveness of Commissioner's decision. Identity of original and reissue. Particular patent construed. Article of manufacture. Commercial and patentable novelty. Inventor. Employer and employé. Suggestions.

1. The purpose of a reissue is to render effectual the actual invention for which the original patent should have been granted,—not to introduce new features, therefore, in an application for a reissue, parol testimony is not admissible to enlarge the invention beyond what was described, suggested, or substantially indicated in the original specification, drawings, or Patent Office model. (p. 182.)
2. Unless it is apparent upon the face of the reissue that the Commissioner has exceeded his authority, his decision is final and conclusive, except if there is such repugnancy between the old and the new patent, that the reissue must be held as a matter of legal construction to be not for the same invention as that embraced in the original. (p. 182.)
3. Whether a reissued patent is for the same invention as the original, depends upon whether the specification and drawings of the reissued patent, are substantially the same as those of the original; and, if not, whether the omissions or additions are or are not greater than the law allows to cure the defect of the original. (p. 182.)
4. Where the original letters patent No. 38,664, for Improvement in Paper Shirt Collars, granted to Andrew A. Evans, May 26, 1863, stated the invention to consist, first, in making the col-

*See Explanation of Notes, page III.

Syllabus.

lars of parchment paper, or paper prepared with animal sizing; and second, in coating one or both sides of the collar with a thin varnish of bleached shellac to give smoothness, strength and stiffness, and to repel moisture, the claim being for "a shirt collar made of parchment paper, and coated with varnish of bleached shellac, substantially as described, and for the objects specified." *Held*, that its reissue No. 2,309, July 10, 1866, which described a paper other than parchment paper, or one prepared with animal sizing, and which did not require either side of the collars to be coated with a varnish of bleached shellac for any purpose, the claim being for "a collar made of long-fibre paper, substantially such as is above described," was for a different invention from that embodied in the original patent. It appearing that the collars made by Evans, apart from the paper composing them, were identical in form, structure, and arrangement with collars previously made of linen, paper of different quality, and of other fabrics, and that Evans did not invent the special paper used by him, nor the process by which it was obtained; *held*, that he was not entitled to a patent for the collars as a new manufacture, neither was he the inventor of the collars. (p. 183.)

5. Articles of manufacture may be new in the commercial sense when they are not new in the sense of the patent law. (p. 190.)
6. New articles of commerce are not patentable as new manufactures, unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture. (p. 190.)
7. Where the original patentee invented neither the process nor the article made, conceived the idea that an article having certain qualities was desirable for his purpose, employed a manufacturer to produce the desired article, but gave him no information as to the constituents to be used or the mode of operation for compounding them, *held* he was not the inventor. (p. 191.)
8. The relation of employer and employé, in regard to the origin of inventions, stated. (p. 191.)
9. If suggestions communicated by the employé constitute the

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whole subject of the improvement, the patent, if granted to the employer as his invention, is invalid, because the real invention or discovery belongs to the person who made the suggestions. (p. 191.)

10. Reissue No. 1,646. S. S. Gray. March 29, 1864. Shirt Collars. (Original No. 38,961, June 23, 1863), *construed* in view of the fact that the object in turning down a collar on a curved line instead of a straight line, is precisely the same, whether the collar be all paper, paper and linen, or all linen. Hence, where it appeared that linen collars had been turned over on a curved line to prevent wrinkling, and to afford space for the cravat. *Held*, that it was not patentable to apply the same mode of turning down to collars of paper or paper and linen. (p. 192.)

[Citations in opinion of the Court.]

Gill v. Wells, 6 Off. Gaz. 881. p. 186.

Paper Collar Co. v. Van Deusen, 10 Blatch. 109. p. 188.

Glue Co. v. Upton, 6 Off. Gaz. 840. p. 190.

Hotchkiss v. Greenwood, 11 How. 248 [5 Am. & Eng. 240]. p. 191.

Phillips v. Page, 24 How. 164 [7 Am. & Eng. 97]. p. 191.

Jones v. Morehead, 1 Wall. 155 [7 Am. & Eng. 165]. p. 191.

Stimpson v. Woodman, 10 Wall. 117 [8 Am. & Eng. 221]. p. 191.

Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24]. p. 192.

Appeal from the Circuit Court of the United States for the Southern District of New York.

The case is fully stated in the opinion of the court.

The specifications and drawings of the letters patent referred to in the opinion of the court are as follows:

SOLOMON S. GRAY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SHIRT-COLLARS.

Specification forming part of Letters Patent No. 38,961, dated June 23, 1863.

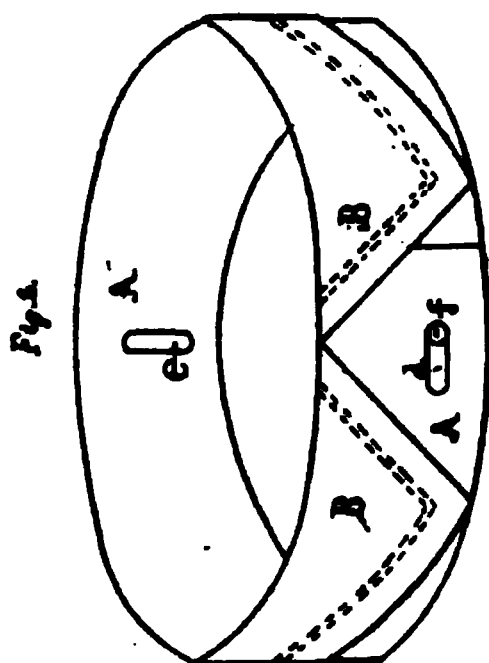
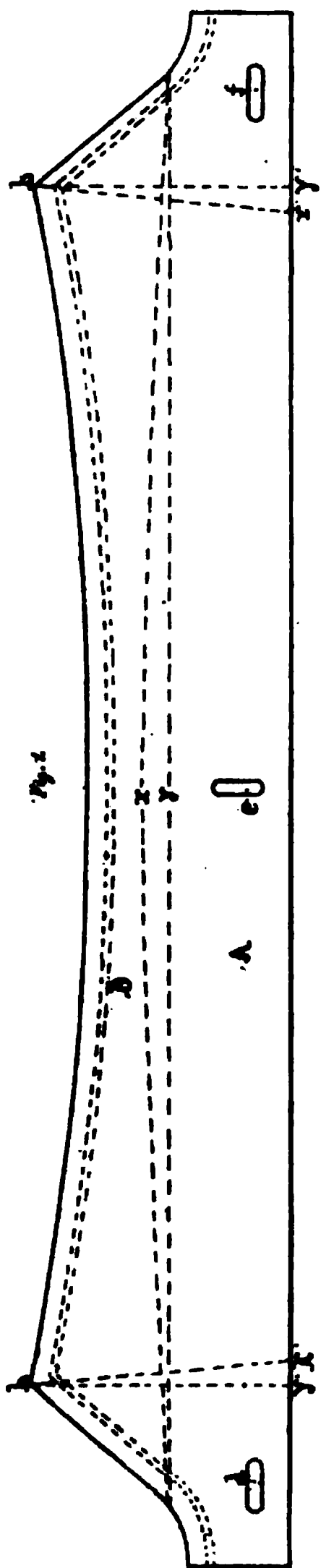
To all whom it may concern:

Be it known that I, Solomon S. Gray, of Boston, in the

*S. S. Gray,
Collar.*

No. 38,961

Patented June 23, 1863.



*Solomon S. Gray
Inventor.*

*Abraham S. Gray }
Attorney.*

Statement of the case.

county of Suffolk and Commonwealth of Massachusetts, have invented a new and useful improvement in Turn-Over Shirt-Collars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Fig. 1 is a plan of a collar before it is turned over; and Fig. 2 is a perspective view of the same turned over and brought into a circular form, as on a person's neck.

Like parts are indicated by the same letters in both of the drawings.

A great defect in turn-over collars (especially collars made of paper, or cloth and paper united), has been the wrinkling or puckering of the inner part when brought into a circular form, as on a person's neck, occasioned by the inner part, of necessity, occupying a smaller circle than the outer one.

The nature of my improvement therefore consists in so constructing a turn-over collar as to do away (with) the above-described effect; and this object I accomplish by turning the collar over on a curved line, x , instead of a straight line, y , so that the corners $b\ b$ of the turn-over part B, will strike the points $x'\ x'$, instead of $y'\ y'$, as they would if the collar were turned over on the straight line y , by which it is evident that the longer space from y' to y' —*i.e.*, from b to b —has only to cover the shorter space from x' to x' on the part A forming the inner circle, and thus the inner circle will not be wrinkled or puckered by the tension of the outer one.

To enable others skilled in the art to make and use my improvement, I will now proceed to describe its construction and operation.

I do not confine myself to any particular style of turn-over collar, nor to any particular material, though I consider my improvement as being more particularly applicable to paper, or cloth and paper combined.

Statement of the case.

Fig. 1 represents a collar before being turned over, *d*, *e*, and *f* being button-holes, punched in the usual manner.

Hitherto collars have been turned over in the straight line, *y* (represented by the dotted line in Fig. 1), and the practical objection to all such collars has been described above. The line *x*, however, as will be seen by inspecting Fig. 1, is a curve or the arc of a circle, and on this line the part B is turned over onto the part A. The best mode of doing this is to make in the collar an impression of the curve or line on which it is to be turned over, either by means of a die pressed upon it, or by drawing a pointed instrument over it beside a pattern. When this is done, the collar can be readily turned over, following the indented line; or the collar may be turned over the edge of a pattern or block of the proper curve or line. The line *x*, however, instead of being a curve, or the arc of a circle, might be composed of straight lines, with an angle at the center of the collar, and accomplish the object desired about as well. I prefer, however, to make it, *x*, the exact arc of a circle.

The drawings are as large as a medium-sized collar, and the greatest distance from the straight line *y* to the curved line *x* is about one-fourth of an inch. It may, however, be a little more or less, and still accomplish the object required.

Collars thus constructed never wrinkle or pucker, and may even be rolled up into a circle of not more than an inch or so in diameter, as is often convenient for transportation, without the slightest injury.

Having thus described the nature and operation of my improvement, what I claim as new, and desire to secure by letters patent, is—

A shirt-collar in which the part B is turned over onto the part A in the curved or angular line *x*, instead of a straight line, in order to prevent the part A from wrinkling, substantially as described.

Witnesses:

N. EVANS, Jr.,
N. AMES.

SOLOMON S. GRAY.

Statement of the case.

SOLOMON S. GRAY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SHIRT-COLLARS.*

Specification forming part of Letters Patent No. 38,961, dated June 23, 1863 ; Reissue No. 1,646, dated March 29, 1864.

To all whom it may concern :

Be it known that I, Solomon S. Gray, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in Turn-Over Shirt-Collars ; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Fig. 1 represents the outline of the collar before it is turned over, with lines dotted thereon to illustrate the mode and manner of folding it over and the effect produced thereby. Fig. 2 represents a perspective view of the same turned over and brought into a circular form as it would be on a person's neck.

The same letters indicate like parts in both of the drawings.

In the making of turn-over shirt-collars of paper, or of cloth and paper combined, it is exceedingly difficult to fold the material so that when turned over on the arc of a circle it will present a regular line. This cannot be done by the eye, but must be done by a gauged line made in the material, or by a former of suitable shape laid on the material as a guide to turn it over by.

The first part of my invention consists in turning over the collar by a line pressed into the material by a die, or by drawing a pointed instrument over it beside a pattern, and then following the indented line, or by turning it over the edge of the pattern or block of the proper curve or line.

Another defect or difficulty in turn-over collars made of

*The drawings of this reissue are identical with those of the original letters patent No. 38,961. p. 158 *ante*.

Statement of the case.

paper, or of paper and cloth combined, consists in the wrinkling or puckering of the inner part when brought into a circular form, as it is when on the neck of the wearer, and which is occasioned by the inner part of necessity occupying a smaller circle than the outer part.

The second part of my invention consists in turning the collar over in a curved line or in a series of straight lines and slight angles, by which means the wrinkling or puckering is entirely obviated.

In a paper, or a cloth and paper combined, collar, if turned over on a straight line, in addition to the wrinkling and puckering there is another objection, viz., the difficulty of inserting a necktie underneath the turned-down portion and the band, and when inserted it increases the tendency of the inside to wrinkle and pucker, but by turning over the collar on a curved line, or on a series of straight lines that elongate the line by which it is turned over, there is a space formed between the turned down portion and the band portion in which the necktie can be laid without the least tendency to wrinkle or pucker.

The third part of my invention consists in so turning over a collar made of paper, or of paper and cloth combined, on a curved or arched line as that a space shall be left between the turned-over portion and the band portion, which space may be occupied by a necktie of any ordinary description.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

My invention is not confined to any particular style of turn-over collar, but I regard it as more particularly applicable to collars made of paper, or of paper and cloth combined.

Hitherto collars have been turned over in a straight line, as represented by the dotted line Y in Fig. 1, and the practical objection to all such collars has been mentioned above. The line X, however, as will be seen in said Fig. 1, is an

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arc of a circle, and on this line the part B is turned over onto the part A. The best mode of doing this is to make in the collar an impression of the curve or line on which it is to be turned over either by means of a die pressed upon it or by drawing a pointed instrument over it beside or along a pattern. When this is done, the collar can be readily turned over on or following the indented line, or the collar may be turned over the edge of a pattern or block of the proper curve or line.

The line X, instead of being in a curve or arc of a circle, might be composed of a series of straight lines with an angle at the center of the collar and accomplish the desired object about as well. I prefer, however, to make the folding line on the arc of a circle.

In turning the collar over on a curved line, as at X, instead of a straight line, as at Y, the corners *b b* of the turn-over part B will be over the points X' X' instead of the points Y' Y', where a straight line would bring them, by which it is evident that the longer space from Y' to Y' (*i.e.*, from *b* to *b*) has only to cover the shorter space from X' to X' on the part A, forming the inner circle, and thus the inner circle will not be wrinkled or puckered by the tension of the outer one. Besides, by turning the collar on a curved line so far from the outer portion crowding upon the inner portion and thus wrinkling it, the portion B will actually stand off from the portion A a distance corresponding somewhat to the space shown between the lines *b* Y' and *b* X', and varying only with the extent of curvature of said folding or turn-over line. This space between the two portions A B when the folding-over is done is available for a necktie if one be worn, but the space itself prevents the two parts from pressing against each other, which pressing tends to wrinkle one or the other.

d, *e*, and *f* represent the button-holes, which are punched in the material in the usual way.

The drawings are about the size of a medium collar, and the greatest distance from the straight line Y to the curved

Statement of the case.

line X is about one-fourth of an inch. It may, however, be more or less and still accomplish the object required. Collars thus constructed never wrinkle or pucker, and may be even rolled up into a circle of not more than an inch or so in diameter (as is often convenient for transportation) without the slightest injury, as the difference in length of the outer and inner portion, and the fact that the outer portion stands off from the inner portion so as to leave clear space between them admits of such rolling.

Having thus fully described my invention, what I claim therein as new, and desire to secure by letters patent, is—

1. The turning over of a paper, or of a paper and cloth, collar by a defined line, whether pressed into the material by a die or pointed instrument or by bending it over the edge of a pattern or block of the proper curve or line, substantially as described.

2. Turning the part B of a paper, or a paper and a cloth, collar over, onto, or toward the part A in a curved or angular line instead of a straight line, substantially as and for the purpose described.

3. So turning over the part B onto or toward the part A in the manner above described as that a space shall be left between the two parts for the purpose and substantially in the manner herein described.

Witnesses :

SOLOMON S. GRAY.

A. B. STOUGHTON,

JAMES A. WOODBURY.

ANDREW A. EVANS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PAPER SHIRT-COLLARS.

Specification forming part of Letters Patent No. 38,664, dated May 26, 1863; antedated May 15, 1863.

To all whom it may concern:

Be it known that I, Andrew A. Evans, of Boston, in the

Statement of the case.

county of Suffolk, and Commonwealth of Massachusetts, have invented a new and useful Improvement in Shirt-Collars; and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

I am aware that shirt-collars have been made of a fabric composed of paper and woven cloth prepared in a peculiar manner, as in the patent numbered 11,376, and that indifferent collars have been made of the ordinary kinds of paper; but the former is expensive, has a comparatively coarse appearance, and when turned over is apt to crack, so as to form a roughened edge, while the latter is too fragile and tender to make a suitable button-hole or be of much utility as a collar.

The nature of my invention therefore consists, first, in making shirt-collars of a fabric known to the trade as "parchment paper," or paper prepared with animal sizing, which may be manufactured cheaper than a fabric composed of paper and cloth, is sufficiently tough and strong to form tenacious button-holes, is susceptible of a smoother surface and polish than cloth paper, and can be turned over without cracking, and forming a roughened edge, &c.; second, in coating one side or both sides of paper shirt-collars with a thin varnish of "bleached shellac," which not only adds smoothness, strength, and stiffness to the fabric, but also, being a repellant of water, prevents perspiration or other moisture from entering the collar. The shellac, moreover, renders the surface of the paper so hard and smooth that it wears much longer without being soiled by exposure to dust or damp.

I make my collars of any of the patterns or shapes in general use, either "stand-up" or "turn-over," and provided with button-holes, by means of which they are attached to shirts in the usual manner. I first take parch-

Statement of the case.

ment paper, or paper prepared with animal sizing, and cover one side or both sides of it with thin varnish of bleached shellac, and allow it to dry. The paper is then passed between polishing rollers, such as are in general use for polishing paper or cloth; and this operation finishes the fabric ready to be made into collars. The collars are cut out and the button-holes punched by dies with great rapidity.

My invention constitutes, I think, a great improvement in the art of making shirt-collars, producing a cheaper and better article of its kind than any known or used before.

Having thus described the nature and operation of my improvement, what I claim as new, and desire to secure by letters patent, is—

A shirt-collar made of parchment paper, and coated with varnish of bleached shellac, substantially as described, and for the objects specified.

ANDREW A. EVANS.

Witnesses :

N. EVANS, Jr.,

N. AMES.

JAMES A. WOODBURY, OF BOSTON, MASSACHUSETTS, ASSIGNEE OF ANDREW A. EVANS.

IMPROVEMENT IN PAPER SHIRT-COLLARS.

Specification forming part of Letters Patent No. 38,664, dated May 26, 1863; Reissue No. 2,309, dated July 10, 1866.

DIVISION A.

To all whom it may concern :

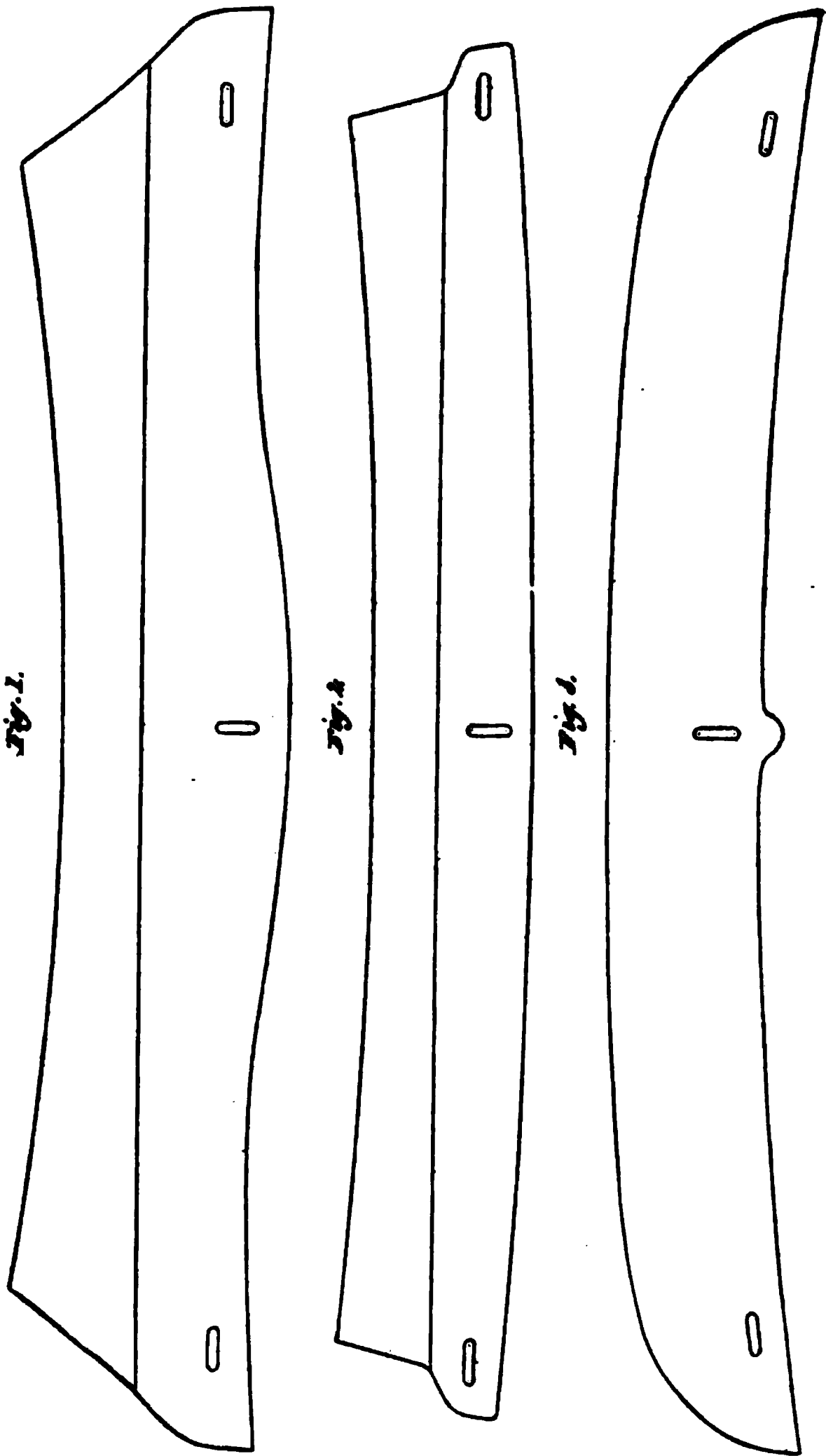
Be it known that Andrew A. Evans, of Boston, in the county of Suffolk, and State of Massachusetts, did invent a new and useful Improvement in Shirt-Collars; and I do

A. A. Evans.

Collar.

No. 2309.

Reissued July 11, 1866.



Witnessed
James A. Woodbury
By atty A. B. Stoughton.

Statement of the case.

hereby declare that the following is a full, clear and exact description of the same.

Previous to the invention of the said Andrew A. Evans collars were made of paper applied to some woven fabric, the paper serving the purpose of giving to the loose and limber fabric the body, rigidity of stiffness and general appearance of a starched linen collar, while the backing of cloth or fabric gave it the necessary strength or resistance. The increasing cost of the backing and the difficulty attending the manufacture render the collars, intended to be worn as a general thing but once, too expensive to answer the purpose they were designed for. The object of the said Evans was, therefore, to make a paper collar in which the cloth backing may be dispensed with, and which he did, as follows :

Said Evans discovered as the result of many experiments that in order to produce a really good collar the paper must possess the following qualities—viz., strength to withstand the usual wear and tear, particularly where button-holes are used, without excessive thickness, such as to destroy the resemblance to a starched linen collar, and tenacity or toughness with pliability sufficient to allow the collar to be folded upon itself without cracking at the fold, and the pureness of color and necessary polish to make it resemble starched linen. He (said Evans) made his collars out of a paper which he produced, or caused to be produced, in which he combined these qualities, which paper was made of a long fiber, substantially in this respect like bank-note paper, but of about the same thickness as that of an ordinary collar, and of a pure shade or color such as to resemble starched linen. By means of the length of fiber in the material he was enabled to obtain from the degree of thickness above specified a sufficient degree of strength, tenacity and pliability to make a collar practically useful for wear without interfering with the resemblance in appearance to a linen collar. A sample of the paper which he thus found suitable and used is shown

Statement of the case.

filed with the original application of the said Evans for his patent above referred to.

To produce a paper having the above-mentioned qualities, what is known as "hard stock" should be used in larger proportion than is required for other descriptions of paper except for that which is known as "bank-note" paper, and in the process of pulping the stock dull knives should be used, and the distance of the knives or beaters and their mode of striking the knife-bar should be so arranged as to draw out the pulp instead of chopping it short, constituting what is known as the "long-beating" process, and this long beating should be continued for a great length of time so that the fiber shall be not only long but fine, and thereby the paper not only be more strong but more smooth and even, and the fiber become bedded in the thickness of the paper, so as not to mar the surface. After the stock is thus pulped, the paper, if made upon a cylinder-machine, may be run off in two or more sheets of pulp, which may be united as they run from several cylinders and pass together one over the other, under the press or rolls, into one sheet of the required thickness, or one sheet may be first run off upon a reel and then united in the same manner with another sheet running from the cylinder and both passing under the rolls together; but the former mode is found preferable in practice, as the several sheets are in that case of equal degrees of moisture, and therefore form in that state a more perfect union. In case a single sheet is used made upon a cylinder-machine, as its thickness and length of fiber tend to retain the moisture, great care must be taken to expel the water from the pulp. In case a Fourdrinier machine is used the paper may be made of the required thickness from a single sheet of pulp; but the "wire" on which the pulp is formed should be supplied with extra suction-boxes to remove the water, and its forward motion should be much slower than in the manufacture of ordinary paper, while the lateral or vibratory motion of the wire should be

Statement of the case.

as rapid or more rapid than usual in order to afford greater time and motion for extracting the moisture from the pulp. Care should also be used to give to the paper in the pulp the slight bluish tinge which is found in starched linen, and to prevent its having a dead or yellowish white color.

The invention of said Evans is not confined to the use of any specific proportion of hard stock, nor to any specific time or mode of long beating of the pulp, nor any specific method of running off or uniting the sheet of pulp, or of exhausting the moisture, or of giving the required tint; but it is believed that the quality of stock to be used, and the process by which the length of fiber and the required shade of color are produced, will be readily understood by paper manufacturers having regard to the above description and the purposes for which the paper is designed.

This paper may be prepared with animal sizing, and when so prepared it is known in the trade as "parchment" paper, or such sizing may be dispensed with.

The paper may also be covered on one or both sides with a thin varnish of bleached shellac and allowed to dry, or such varnishing may be dispensed with. The paper having been passed between polishing rollers, such as are in general use for polishing paper or cloth, is ready to be made into collars.

The collars are cut out and the button-holes, if any, are punched by dies, and the collar may be indented along a line running parallel with the exposed edges, so as to imitate the stitching of sewed collars, and of such various patterns or shapes as are in use, either "stand-up" or "turn-over," and provided, if required, with button-holes, by means of which they might be attached to shirts in the usual manner, and as represented in the accompanying drawings, marked respectively Figs. 1, 2, and 3.

What is claimed under this patent as the invention of the said Andrew A. Evans, and desired to be secured by letters patent, as a new article of manufacture, is—

Argument of counsel.

A collar made of long fiber paper, substantially such as is above described.

JAMES A. WOODBURY.

Witnesses :

A. B. STOUGHTON,
JOHN S. HOLLINGSHEAD.

Messrs. C. A. Seward and Charles C. Morgan, for appellant :

In *Seymour v. Osborne*, 11 Wall. 542 [8 Am. & Eng. 290], it was held that the crucial test of the only question which remains after the Commissioner has reissued a patent, is this : "Is there such a repugnancy between the old and the new patent that it must be held, as a matter of legal construction, that the new patent is not for the same invention as that embraced and secured in the original patent?" No such repugnancy can exist in the present case, for the reason that it is the identical paper in the form of a collar that is embraced in both patents. These views seem to be abundantly sustained in *Milligan, etc., Glue Co. v. Upton*, 6 Pat. Off. Gaz. 838 ; and *Goodyear D. V. Co. v. Smith*, 5 Pat. Off. Gaz., 587.

In *Curtis on Patents* (sec 27, n. 2), the following remark of Lord Chief Justice Abbott is quoted :

"The best definition of the term 'manufacture' as the subject of a patent, would be any new combination of old material, constituting a new result or production in the form of a vendible article, not being machinery."

So, also, our own courts have said that : "A new process or method of operation is patentable, when it amounts to a successful application of known things ; and the patent is *prima facie* evidence of novelty of the invention."

Roberts v. Dickey, 4 Brews. 260 ; S. C. 3 Pittsb. 352 ; 1 Pat. Off. Gaz. 4 ; *Roberts v. Dickey*, 4 Fish. Pat. Cas. 532 ; *Detmold v. Reeves*, 5 Pa. Law. Jour. Rep. 99.

Concede that Evans knew that there were different kinds of paper, each one of which possessed separately some one

Argument of counsel.

of the qualities which he was seeking to combine ; still, if he was the first to combine material and processes which united those separate qualities in their product, such product was a new manufacture by reason of the new combination.

Many v. Sizer, 1 Fish. 17.

So, also, in *Goodyear v. R. R. Co.*, 2 Wall. Jr. 356, Mr. Justice Grier, in speaking of the soft vulcanized rubber, said : " It was a combination of matter having qualities possessed by no other known material."

Many v. Jagger, 1 Blatchf. 372, and *Muntz v. Foster*, 2 Web. Pat. Cas. 96, are illustrative of the same rule.

In *Ryan v. Goodwin*, 3 Sumn. 514, where the subject matter of the patent was the chemical composition used upon the ends of matches to secure their ignition, Judge Story held that the omission, from the former composition, of one of the ingredients, viz.: the chlorate of potash, was sufficient to sustain the patent.

Evans omitted all those substances and modes of treatment which produce the undesirable qualities of excessive stiffness, splitting, cracking and discoloration, and combined for the first time the qualities which render the product a successful one as a collar paper.

In *Strong v. Noble*, 6 Blatchf. 477, a patent for a whip-handle covered by a knit fabric was upheld, although the handle was old, and although tubular coverings and other kinds of coverings than those produced by knitting were old ; and it was held that, because there were advantages resulting from the knitted fabric in point of ornament, economy and durability, which could have become known only by experiment, the combination was a new manufacture.

In *Hoffman v. Stiefel*, 7 Blatchf. 58, the court, speaking of paper collars with an enameled surface, said :

" The fact that such a collar was not known as a practical thing before the plaintiff made it, would naturally lead to the conclusion that the proper enameled paper was not

Argument of counsel.

made until the plaintiff made it. Because, if the paper had been known, the use of it for the collar was sufficiently obvious. Finding no proper enameled paper ready to his hand, the plaintiff experimented for some time to produce it and at length succeeded, and making the collar followed." If this was true of simply enameling the collar paper, which implied the use of a paper suitable for a collar, *a fortiori* it is true of a paper which, for the first time, supplied the market with a paper collar "as a practical thing."

It is said in Curt. Pat. 57 :

"It is not to be laid down broadly, that the use of one material in the place of another can never be the subject of a patent. If such substitution involves a new method of attachment or construction, or leads to any new mode of operation, or develops a new application of the properties in matter, so as to change the use of the manufacture or machine, there may be in the use of the new material a patentable invention."

This view was adopted, in its larger and more generous extent, in the case of Goodyear D. V. Co. v. Smith, 5 Pat. Off. Gaz. 585.

Messrs. J. J. Coombs and Edward Wetmore, for appellees :

Paper collars are folded, whether on a straight or on a curved line, by the same methods by which paper has been folded on such lines from time immemorial. The specification does not suggest any new methods nor any novelty or difficulty in applying the old methods.

The plaintiffs do not attempt to contradict or deny the fact that the collars in question were made and publicly used ; but they claim that they were abandoned and fall within the rule of abortive experiments.

The rule, however, does not apply, for this reason : where an article has been once successfully made and also used in public, not necessarily used by the public (Curt. Pat. 64,

Argument of counsel.

and cases cited), it is sufficient to destroy the claim of a subsequent alleged inventor of the same article.

The bare fact that the paper collars made before Gray's patent did not become articles of trade, or even that the attempt to introduce them as articles of trade proved unsuccessful, does not, of itself, prove that these collars were not completely and successfully made, and perfectly folded on a curved line by the means described. On the other hand, the evidence being direct and decisive that they were successful, and were actually and frequently worn and used in public, there is nothing in the facts mentioned which overcomes that evidence or avoids the conclusion that in the instances named, Gray's alleged invention was completely anticipated.

The rule governing the examination of reissues by the courts, is now well settled. It is true, judicial tribunals cannot go behind the action of the Patent Office, on the mere questions whether errors had arisen from inadvertence, etc., as required by the statute, before the reissue was granted. Whatever frauds may have been practiced in obtaining the corrected grant, they cannot be investigated in a suit for infringement.

Not so, however, the jurisdictional fact that the reissue must be for the same invention as the original.

Am. Wood Paper Co. v. Disintegrating Co., 6 Blatchf. 27, affirmed 23 Wall. 566 [p. 199 *post*]; *Carlton v. Bokee*, 17 Wall. 463 [9 Am. & Eng. 91.]

In the present instance, it appears upon the face of the two specifications, that the alleged inventions described in the original and in the reissue are not only different but repugnant.

Reissues are allowed when a patent is inoperative or invalid by reason of a defective or insufficient specification, and a new and correct patent can be issued only for the same invention, as that defectively or insufficiently described in the original, not for a different invention or one not described at all in the original.

Argument of counsel.

Evans was not the inventor of the thing described and claimed in that patent, whether what is so described and claimed is patentable or not.

He saw a sample of paper made by a particular maker, which was suitable for collars, except as to color and some minor details. He took this sample to the manufacturer and ordered a quantity of the same paper, with the requisite change as to color.

He was wholly ignorant of the art of paper making, and gave no directions or suggestions as to the mode in which the paper was to be manufactured, and had no other agency in producing the paper than ordering it in the first place, and pointing out to the paper maker afterwards, when the paper was not white enough or thick enough, etc., for the purpose for which it was to be applied.

The allegation of the plaintiffs is, that, in doing as above recited, Evans invented a new article of manufacture, by inventing the material from which it is made.

It must be admitted that the whole of the alleged invention consists in the paper. If Evans did not invent the paper, he did not invent anything.

Now, if there is nothing new in the process of making the paper, there can be nothing new in the paper when made.

There may be an old product from a new process, but there cannot be a new product from an old process. No article can be made or imagined, which is novel, which has some difference distinguishing it from other things of the same kind, of which that novelty is not caused by some corresponding novelty in the process of its construction. If two things are made in exactly the same way, they must be actually similar. This is self-evident.

In the present instance, the paper claimed in the Woodbury reissue, if it was new, must have owed that novelty to some corresponding change in the process of its manufacture.

If the Evans paper was a new thing, Evans must have in-

Argument of counsel.

vented the way of making it, or he is not entitled to a patent, either for the paper when made or the collar made from it. The Woodbury specification admits this by implication, by stating that "The invention of said Evans is not confined to any specific proportion of hard stock," etc., *i. e.*, his invention consists in using "hard stock," etc., but is not confined to any specific proportions, etc. Yet, according to the plaintiff's claim, Evans' part in the invention did not consist in any suggestion as to the way of making the paper, but simply in describing the general qualities it should possess when made. He merely stated the problem, without hinting at any method of its solution.

Whoever suggests the plan or principle of the invention, is the first and true inventor.

See, Curt. Pat. sec. 19, *et seq.* 3d ed.; Alden v. Dewey, 1 Story. 336; Pitts v. Hall, 2 Blatchf. 229; King v. Arkwright, 1 Web. Pat. Cas. 64 [1 Am. & Eng. 29]; Minter v. Wells, *Idem.* 132.

What, then, is the "plan or principle" of the alleged invention in the Woodbury reissue?

The principle of an invention, in any case, consists of the method or rule of action embodied therein.

"Whoever discovers that a certain useful result will be produced in any art, machine, manufacture or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses, in a manner so full and exact that anyone skilled in the science to which it appertains can, by using the means he specifies, without any addition to or subtraction from them, produce precisely the result he describes. If this cannot be done by the means he describes, the patent is void; and if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference in this respect whether the effect is produced by chemical agency or combination, or by the application of discoveries or principles in natural philosophy known or

Opinion of the court.

unknown before his invention, or by machinery acting together upon mechanical principles. In either case he must describe the manner and process as above mentioned, and the end it accomplishes. And anyone may lawfully accomplish the same end without infringing the patent, if he uses means substantially different from these described."

O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483].

Mr. Justice CLIFFORD delivered the opinion of the court:

Patents may be granted for a new manufacture, as well as for a new and useful art, machine or composition of matter, if it appears that the manufacture is both new and useful, and that the applicant, who desires to obtain the exclusive property therein, is the original and first inventor or discoverer of the improvement. Such a patent, also, if inoperative or invalid for either of the reasons stated in the 13th section of the Patent Act may, if the error arose from inadvertence, accident or mistake, and without any fraudulent or deceptive intention, be surrendered; and in that event, the Commissioner may cause a new patent to be issued for the same invention for the residue of the period then unexpired, for which the original patent was granted.

5 Stat. at L. 122.

Matters embraced in the pleadings not in controversy will be passed over without comment. Seven of the patents described in the bill of complaint are of that character which leaves but two for re-examination. Certain of the patents were adjudged invalid, in respect of which there is no assignment of error by the complainants; and certain other patents were adjudged valid, and the respondents not having appealed from the decree, the question of their validity is not open to re-examination.

Two other patents were surrendered by the complainants and reissued during the litigation for the infringement, of which no profits or damages can be recovered in this suit. Stripped of all such matters, (a) the case presents two

Omitted in Wall.

(a) Wallace begins Opinion here.

Opinion of the court.

principal questions for decision: 1. Whether the reissued patent granted to Andrew A. Evans for improvements in paper shirt collars is a valid patent. 2. Whether the reissued patent originally granted to Solomon S. Gray for improvements in turn-over shirt collars is a valid patent (*b*).

Usually the question of infringement also arises in such controversies, but that question is closed in this case in favor of complainants by the admission of the respondents.

Proofs were taken on both sides, and the Circuit Court entered a decree that the two patents in issue here are invalid, and the complainants appealed to this court. Since the appeal was entered here, the complainants have filed the following assignment of errors: 2. That the Circuit Court erred in its decision that Evans was not the inventor of his patented product, and in its decree that the reissued patent therefor is not a valid patent. 3. That the Circuit Court erred in its decision that Gray's invention was anticipated by prior inventions, and in its decree that the reissued patent therefore is not a valid patent.

Two answers are made to the first assignment of errors: (*c*)

1. That the reissued patent of Evans is not for the same invention as the original, which, (*d*) if true, is sufficient to show that the patent is invalid, even if the patentee was the original and first inventor of the improvement described in the original patent.

Power to surrender patents for the purpose suggested in the Act of Congress implies that the specification may be corrected to the extent necessary to cure the defects and to supply the deficiencies to render the patent operative and valid, but the interpolation of new features, ingredients or devices which were neither described, suggested nor substantially indicated in the specification, drawings or Patent-Office model were never allowed, and by a recent Act

23 Wall. 557.

(*b*) Wallace omits from (*b-c*).

(*c*) Wallace inserts, "Infringement is admitted. The defendants allege."

(*d*) Wallace substitutes "this" for "which."

Opinion of the court.

of Congress it is provided that no new matter shall be introduced into the specification, nor, in the case of a machine patent, shall the model or drawings be amended except each by the other. 16 Stat. at L. 206.

Repeated decisions also have established the rule that parol testimony is not admissible, in an application for a reissued patent, to enlarge the scope and effect of the invention beyond what was described, suggested or substantially indicated in the original specification, drawings, or Patent Office model, as the purpose of a surrender and reissue is not to introduce new features, ingredients or devices, but to render effectual the actual invention for which the original patent should have been granted.

Unless, however, it is apparent upon the face of the new patent that the Commissioner has exceeded his authority, his decision is final and conclusive, as the jurisdiction to reissue patents is vested in him subject to a single exception; that if there is such repugnancy between the old and the new patent that it must be held, as matter of legal construction, that the reissued patent is not for the same invention as that embraced and secured in the original patent, then the reissued patent is invalid.

Whether a reissued patent is for the same invention as the surrendered original or for a different one, must very largely be determined by a comparison of the two instruments, as the decision must necessarily depend upon the question whether the specifications and drawings of the reissued patent are not substantially the same as those of the original; and if not; whether the omissions or additions are or are not greater than the law allows to cure the defects of the original specification.

(e) Before describing the nature of his invention, the patentee in this case admits that he is aware that shirt collars have been made of a fabric composed of paper and woven cloth prepared in a peculiar manner, and that collars of an

23 Wall. 557-558.

(e) Wallace omits from *e-f*.

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indifferent character have been made of the ordinary kinds of paper; but the former, as he states, are expensive and have a coarse appearance, and the latter are too fragile to admit of a suitable button hole, or to be of much utility as a shirt collar.

His invention, as he says, consists of two features: 1. In making shirt collars of a fabric known to the trade as parchment paper, or paper prepared with an animal sizing, which may be manufactured cheaper than a fabric composed of paper and cloth, and is sufficiently strong and tough to form tenacious button-holes, and is susceptible of a smoother surface and polish than cloth paper, and may be turned over without cracking or forming a roughened edge. 2. In coating one or both sides of paper shirt collars with a thin varnish of bleached shellac, which not only adds smoothness, strength and stiffness to the fabric, but, being a repellant of water, it also prevents perspiration or other moisture from entering the fabric of the collar, and renders the surface of the paper so hard and smooth that it wears much longer without being soiled by being exposed to dust or dampness,

Specific directions are then given by the patentee as to the manner of dressing the described fabric before it is manufactured into shirt collars, as follows: First, take the parchment paper or paper prepared with animal sizing, and cover one or both sides of it with thin varnish of bleached shellac and allow it to dry. Then pass the paper through the polishing rollers, such as are in general use for polishing paper or cloth, and then the fabric is ready to be cut into collars and the button-holes may be punched by dies, with great rapidity.

Instead of that, the representation of the reissued patent is, that the alleged inventor discovered, as the result of his experiments, that in order to produce a really good collar, the paper used for the fabric must possess sufficient strength, without excessive thickness, to destroy the resem-

Omitted in Wall.

Opinion of the court.

blance to linen, and sufficient tenacity, toughness and pliability to allow the collar to be folded upon itself without cracking at the fold, with the pureness of color and necessary polish to resemble starched linen.

Shirt collars of the kind described, he made, as represented in the specification of the reissued patent, out of a paper which he produced or caused to be produced, in which he combined those qualities; which paper was made of a long fiber substantially in that respect like bank-note paper, and of about the same thickness as an ordinary shirt collar and of a pure shade or color, such as to resemble starched linen. By means of the length of the fiber of the material, he was enabled, as the representation is, to obtain from the specified degree of thickness the requisite degree of strength, tenacity and pliability, to make a collar practically useful for wear, without interfering with the resemblance in appearance to a linen collar; and the representation is, that he found a sample of the paper which was suitable, and that he used it and filed it with his original application for a patent.

Particular description is also given of the means the inventor employs to produce paper possessing the requisite qualities for such a manufacture as follows: What is known as hard stock, it is said, must be used in larger proportion than is required for other descriptions of paper, except for that which is known as bank-note paper, and in the process of pulping the stock, that dull knives should be used, and that the knives or beaters, and the mode of their striking the knife bar, should be so arranged as to draw out the pulp instead of chopping it short, constituting what is known as the long-beating process, which should be continued for a great length of time, so that the fibers shall be not only long, but fine, the effect of which will be to make the paper stronger and smoother, and to bed the fiber in the thickness of the paper so as not to mar the surface.

Omitted in Wall.

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Two modes of manufacturing the pulp stock into paper are then described, as follows :

1. If worked upon a cylinder machine, the representation is that the paper may be run off in two or more sheets of pulp, which may be united as they run from the machines, and pass together one over and the other under the press or rolls, into one sheet of the required thickness ; or one sheet may be first run off upon a reel, and then united in the same manner with another sheet running from the cylinder, and both passing under the rolls together. Preference, however, is given by the patentee to the former mode, for the reason that the several sheets are in that case of equal degrees of moisture, and, therefore, form in that state a more perfect union, and he adds, that great care must be taken to expel the moisture from the pulp in case a single sheet is used in that mode of manufacture, as the thickness and length of fiber tend to retain the dampness.

2. Such paper, it is said, may also be made, of the required thickness, from a single sheet of pulp, in case a Fourdrinier machine is used ; but the representation is, that the wire on which the pulp is formed should be supplied with extra suction boxes to remove the water, and that its forward motion should be much slower than in the manufacture of ordinary paper, but the lateral or vibratory motion of the wire should be even more rapid than usual, in order to afford greater time and motion for extracting the moisture from the pulp. Care should also be used to give to the paper in the pulp the slight bluish tinge which is found in starched linen, and to prevent its having a dead or yellowish white color (*f*).

Instruments so widely different (*g*) can hardly be compared within the usual meaning and ordinary application of that word, as they really have substantially nothing in common, so far as respects the description of the invention

23 Wall. 558.

(*g*) Wallace inserts " as are the original patent to Evans and the re-issue of it."

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which they respectively profess to secure. Examples where the difference between the original and reissued patents is as manifest as in this case may perhaps arise; but none such were referred to in the argument of such a striking character, nor are any such within the recollection of the court where the difference between the reissued and original patents is so pervading as in the case in decision.

Wide differences in that regard were exhibited in a case (*h*) recently decided by this court, but they were by no means as striking and unmistakable as those disclosed in this record. *Gill v. Wells*, 6 Off. Gaz. 886 (22 Wall. 1) [9 Am. & Eng. 471]. Here the dissimilarity extends to every part of the description of the invention. There it had respect only to one of the elements of the patented combination.

Attempt was made in that case to emasculate the combination described in the original patent by leaving out one of the material elements in order to give the exclusive right a more comprehensive effect in prosecuting suits for infringement; but in the case before the court the reissued patent is different throughout from the invention embodied in the original patent.

Proof of that proposition is found also in the respective claims of the patents as well as in the respective specifications. What I claim as new and desire to secure by letters patent, says the original patentee, is a shirt collar made of parchment paper and coated with varnish of bleached shellac; but the patentee of the reissued patent claims as an article of new manufacture a collar made of long fiber paper without referring to a coating of any kind; nor is the question affected in the least by the fact that the claim of the respective patents concludes with the phrase, "substantially as described," because the description of what is claimed, as given in the respective specifications, is even

23 Wall. 558-559.

(*h*) Wallace substitutes for "a case" "the case of *Gill v. Wells*."

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more widely different than the claims of the respective patents.

Instead of the phrase employed in the claim of the original patent, the specification to which it refers states that the nature of the invention consists, first, in making shirt collars of a fabric known to the trade as parchment paper, or paper prepared with animal sizing; and, second, in coating one or both sides of paper shirt collars with a thin varnish of bleached shellac, which, as there represented, not only adds smoothness, strength and stiffness to the fabric, but also, being a repellant of water, prevents perspiration or other moisture from entering the collar.

Nor will any attempt to construe the claim of the reissued patent by the specification have any tendency to remove the difficulty in the way of the complainants, as the specification is to the same effect as the claim, and shows conclusively that the manufacture there described is a collar made of long fiber paper manufactured in the manner and by the means therein minutely described; that the paper there described is not the parchment paper described in the specification of the original patent, nor is it paper prepared with animal sizing, nor does the specification or claim of the reissued patent contemplate or require that either side of the collars shall be coated with varnish of bleached shellac for any purpose. Animal sizing, according to that patent, may be used or it may be *omitted*, and one or both sides of the paper may be covered with a thin varnish of bleached shellac, or such a coating may be *omitted* altogether, which shows that those two requirements of the original patent are not a material part of the invention embodied in the reissued patent.

Authorities to support the proposition that a reissued patent is invalid if not for the same invention as the surrendered original are scarcely necessary, as the rule is universally acknowledged. *Gill v. Wells*, 22 Wall. 1 [9 Am. & Eng. 471].

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2. Suppose, however, the two may be so construed as to obviate that objection to the reissued patent, still the second defense of the respondents remains to be considered, that the patentee in the original patent is not the original and first inventor of the alleged improvement.

Usually the patent when introduced is *prima facie* evidence to support the affirmative of that issue, but the representations of the specification may be such as to afford satisfactory proof that the alleged invention is neither new nor useful. Equivalent views were expressed by the Circuit Court in disposing of the question involved in the present issue, and in those views the court here entirely concurs. *Paper Collar Co. v. Van Deusen*, 10 Blatchf. 119.

Nothing was known to the supposed inventor respecting paper made of long fiber when he obtained his original patent, except that he previously found, as he states in his reissued patent, a sample of it ready made, suitable for such a purpose, and that he used it and filed it with his original application for a patent. Where he found it does not appear, nor does it appear for what purpose he used it, except that he filed it in the Patent Office. He does not even state that the original patentee knew who made it, nor that he had any knowledge of the process by which it was made. Viewed in any reasonable light the narration shows that the sample was made by another and not by the supposed inventor, and it affords a strong ground of presumption that he knew nothing respecting the process of manufacturing such paper, or of the constituents of the manufacture, except what is matter of common knowledge.

Hard stock, it is now said, must be used in larger proportions than is required for other descriptions of paper, and that the pulp must be subjected for a greater length of time to the long beating process, so that the fiber shall be not only long but fine, in order that the paper may be strong, smooth and even, and that the fiber shall become bedded in the thickness of the paper so as not to mar the

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surface. Neither of such requirements or conditions was contained in the original specification, from which it may be inferred that the original invention did not include the discovery of the constituents of the paper to be used for the purpose, nor the process by which the paper was to be manufactured. Conclusive support to that proposition is found in the specification of the original patent, in which the patentee states that he takes the parchment-paper known to the trade, or paper prepared with animal sizing, and covers one or both sides of it with thin varnish of bleached shellac, and having allowed it to dry, the paper is then passed between polishing rollers, such as are in general use for polishing paper or cloth, which operation finishes the fabric ready to be made into collars.

Enough appears in these suggestions to show that the specification of the original patent does not describe the process of making paper possessing the qualities of long fiber paper, but the making of collars out of parchment paper, showing that the discovery that for a good paper collar the manufacturer must have paper which possesses the qualities of long fiber paper is a subsequent discovery. Nor does the statement in the reissued specification, that he produced such a paper or caused it to be produced, strengthen the case for the complainants, because the same specification states in effect that he found a sample of such paper suitable for the purpose, and that he used it and filed it with his original application, showing conclusively that the paper existed prior to his supposed invention.

Improvements in the manufacture of paper have often been made; and it may be that the discovery, at that period, of the constituents for making such paper or of the process by which paper possessing the described properties could be produced, would have been the proper subject of a patent. Sufficient appears to show that the patentee learned from his experiments that he wanted paper of the qualities described in the reissued patent, and the evidence

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proves that he said so to the paper manufacturer ; but it is clear that he did not communicate any information to the manufacturer respecting the process by which such paper could be produced, nor did he give the manufacturer any directions upon the subject. Information of the kind he could not communicate for the best possible reason ; which is, that he was utterly destitute of any knowledge as to the constituents of such paper or the process by which it could be manufactured. Such paper was eventually produced by the manufacturer to whom the patentee applied to make the attempt, after many experiments as to the character of the materials suited to the end, and as to the mode of operation best adapted to effect the desired result, without any assistance whatever from the patentee.

Good paper collars may unquestionably be manufactured from that product, but it is nevertheless true that the patentee is not entitled to a patent for the collars as a new manufacture, for several reasons: (1) Because he did not invent either the product or the process by which the product is obtained. (2) Because the collars, apart from the paper of which they are made, are identical in form, structure and arrangement with collars previously made of linen, paper of different quality and other fabrics. (3) Because it appears that the patentee is not the original and first inventor either of the paper or of the process by which the paper is made, or of the collar which is denominated a new manufacture.

Articles of manufacture may be new in the commercial sense when they are not new in the sense of the patent law. New articles of commerce are not patentable as new manufactures, unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture or production. *Glue Co. v. Upton*, 6 Off. Gaz. 840.

Nothing short of invention or discovery will support a
23 Wall. 562-563.

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patent for a manufacture any more than for an art, machine or composition of matter, for which proposition there is abundant authority in the decisions of this court. *Hotchkiss v. Greenwood*, 11 How. 265 [5 Am. & Eng. 240]; *Phillips v. Page*, 24 How. 167 [7 Am. & Eng. 97]; *Jones v. Morehead*, 1 Wall. 162 [7 Am. & Eng. 165]; *Stimpson v. Woodman*, 10 Wall. 121 [8 Am. & Eng. 221].

Suffice it to say, that it is not pretended that the original patentee invented either the paper or the process, but the claim in argument is that he was the first person to conceive the idea that paper possessing the described qualities was desirable for the purpose of making such collars; and that, inasmuch as he was not a paper manufacturer he had a right to employ trained skill to produce the desired product, and that he, under the circumstances, should be regarded as the actual inventor because he made known to the manufacturer that paper of such qualities would be useful, and because he employed the manufacturer to engage in the effort to produce the desired article; but the patentee communicated no information to the manufacturer as to the constituents or ingredients to be used, or as to the mode of operation by which they were to be compounded in order to produce the desired result.

Where a person has discovered a new and useful principle in a machine, manufacture or composition of matter, he may employ other persons to assist in carrying out that principle, and if they, in the course of experiments arising from that employment, make discoveries ancillary to the plain and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original principle, and they may be embodied in his patent as part of his invention.

Doubt upon that subject cannot be entertained; but persons employed, as much as employers, are entitled to their own independent inventions, and if the suggestions com-

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municated constitute the whole substance of the improvement the rule is otherwise, and the patent, if granted to the employer, is invalid, because the real invention or discovery belongs to the person who made the suggestions. *Agawam Co. v. Jordan*, 7 Wall. 602 [8 Am. & Eng. 24].

Apply that rule to the present case and it is clear that the original patentee was not entitled to a patent either for the paper or the process, as he never made any invention or discovery upon the subject.

(i) Remark respecting the other patent granted to the same party is quite unnecessary, as it is admitted that it falls within the same rule as the preceding patent, and for the additional reason that the decision of the Circuit Court in that regard is not assigned for error.

3. Two principal defenses are set up by the respondents to the charge made against them, that they have infringed the reissued patent of Solomon S. Gray, as set forth in the bill of complaint: (1) That the patentee is not the original and first inventor of the improvement. (2) That the alleged invention had been in open and public use and on sale in this country for more than two years, with the consent and allowance of the supposed inventor, before he filed his application for a patent (j).

Three claims are contained in the reissued patent, substantially as follows: (1) The turning over of a paper or a paper and cloth collar by a defined line, whether pressed into the material by a die or pointed instrument, or by bending it over the edge of a pattern or block of the proper curve or line, substantially as described. (2) So turning the part B of a paper or paper and cloth collar over towards the part A, in a curved or angular line, instead of a straight line, substantially as and for the purpose described. (3) So turning the part B onto or towards the part A, in the man-

23 Wall. 564.

(i) Wallace substitutes for from (i.j), "We come now to consider the reissued patent of Gray; one defense to which is that the patentee is not the original and first inventor of the improvement."

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ner described, as that a space shall be left between the two parts.

(*k*) Which it is admitted is substantially the same as the second claim, in consequence of which those two claims will be considered together.

1. Collars of paper or paper and cloth, if turned over on a defined line, are covered by the first claim, whether the line is curved, angular or straight, and whether the line is made or pressed into the fabric by a die or any pointed instrument, or marked or effected by bending the material over the edge of a pattern or block of the proper or preferred line or curve. Evidently, therefore, it is intended to cover collars turned over on a defined line effected in any possible manner or by any practicable means, if made of paper or paper and cloth. Shirt collars are turned over or down on a curved line in order to prevent the collars from puckering or wrinkling when bent in a circle, and in order to cause the part turned over or down to set out a little from the band portion of the same, so as to admit a necktie between the band and the part of the collar which is turned over.

Manifestly these objects are precisely the same whether the collar be all paper, paper and cloth, or all linen. Hence it is difficult to perceive upon what ground it can be held that any change in the manner of turning down a collar on a curved line, if made of any one of these fabrics, is patentable, if collars of either of the other fabrics have been turned down before in the same manner and precisely for the same purpose.

Evidence is exhibited which shows that, many years before the patent was granted in this case, paper envelopes and the tops and bottoms of paper boxes were produced by shapers of steel pressed on the material so as to produce defined lines by which the material could be folded. Satisfactory proof is also exhibited that collars made of paper

23 Wall. 564-565.

(*k*) Wallace substitutes for "which," "This third claim."

Notes and Citations.

and cloth were, several years earlier than the date of this invention, folded over a piece of metal in a straight line, which is the same process as that described in the specification of this patent, as it appears that the material was bent over a pattern or block to give the proposed curve or line.

Plenary evidence is also exhibited showing that linen collars were ironed on blocks with a groove in the block by which the collar received a defined line for the folding, which accomplished the same purpose as the pattern or block.

Proofs were also exhibited showing that paper collars, long before the alleged invention under consideration, were folded by laying upon the unfinished side of the same a piece of tin having at one edge the required curve, which enabled the manipulator to accomplish the same object by pressing upward over such curve a part of the collar so as to mark the line of the curve and crease the paper preparatory to turning the collar over, which enabled the laundress to accomplish the same object as the means described in the specification of the patent.

Support to the answer is also derived from the proofs that linen collars had for years been turned over in a curved line and for the very purpose described, which is to prevent wrinkling and to afford space for the cravat.

Taken as a whole, the proofs in this regard are conclusive, that the patentee is not the original and first inventor of the patented improvement described in either of the claims of his patent.

Decree affirmed.

23 Wall. 565-566.

Notes:

4. Reissues void for want of identity with original:

Wood Paper Patent, 23 Wall. 566 [p. 199 *post*].

Russell v. Dodge, 93 U. S. 46.

Powder Co. v. Powder Works, 98 U. S. 126.

Notes and Citations.

Ball v. Langles, 102 U. S. 128.
Heald v. Rice, 104 U. S. 737.
Matthews v. Boston Machine Co., 105 U. S. 54.
Bantz v. Frantz, 105 U. S. 106.
Clements v. Odorless Co., 109 U. S. 641.
McMurray v. Mallory, 111 U. S. 97.
Eagleton v. West, Bradley & Cary Mnfg. Co., 111 U. S. 490.
Torrent & Arms Co. v. Rodgers, 112 U. S. 569.
Eachus v. Broomall, 115 U. S. 429.
Hartshorn v. Saginaw, 119 U. S. 664.
Worden v. Searles, 121 U. S. 14.
Parker & Whipple Co. v. Yale Clock Co., 123 U. S. 87.

5. Articles of manufacture :

Hotchkiss v. Greenwood, 11 How. 248 [5 Am. & Eng. 240].
LeRoy v. Tatham, 14 How. 156 [5 Am. & Eng. 313].
Rubber Tip Pencil Co. v. Howard, 20 Wall. 497 [9 Am. & Eng. 390].
Glue Co. v. Upton, 97 U. S. 3.
Gardner v. Herz, 118 U. S. 180.

8. Relations of employer and employé in regard to the origin of invention :

Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24].

9. Suggestions to inventor :

O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483].
Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24].

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Notes and Citations.

10. Analogous use, not patentable :

Railroad Co. v. Locomotive Truck Co., 110 U. S. 490.

Morris v. McMillin, 112 U. S. 244.

Blake v. San Francisco, 113 U. S. 679.

Stephenson v. Railroad, 114 U. S. 149.

Western Electric Mfg. Co. v. Ansonia Co., 114 U. S. 447.

Eachus v. Broomall, 115 U. S. 429.

Miller v. Foree, 116 U. S. 22.

Dreyfus v. Searle, 124 U. S. 60.

Patent in suit :

No. 38,664. Evans, A. May 26, 1863. Reissue No. 2,309.
July 10, 1866. Paper Collar.

No. 38,961. Gray, S. S. June 23, 1863. Reissue No.
1,646. March 29, 1864. Shirt Collar.

OTHER SUITS ON SAME PATENT :

Union Paper Collar Co. v. Van Deusen, 1872. 10 Blatch. 109; 5
Fish. 597; 2 O. G. 361.

Cited :

IN SUPREME COURT IN :

Dunbar v. Meyers, 1876. 94 U. S. 187; Bk. 24, L. ed. 34.

Roemer v. Simon, 1877. 95 U. S. 214; Bk. 24, L. ed. 384.

Mahn v. Harwood, 1884. 112 U. S. 354; Bk. 28, L. ed. 665.

Notes and Citations.

IN CIRCUIT COURTS IN:

Abbe v. Clark, February, 1878. 3 Ban. & Ard. 211; 13 O. G. 274.
Cone v. Morgan Envelope Co., January, 1879. 4 Ban. & Ard. 107.
McCloskey v. Du Bois, September, 1881. 20 Blatch. 7; 9 Fed.
Rep. 38; 20 O. G. 1086.
MacKay v. Jackman, April, 1882. 20 Blatch. 466; 12 Fed. Rep.
615.
Spaeth v. Barney, January, 1885. 22 Fed. Rep. 828; 19 Rep.
324; 30 O. G. 997.

IN DECISIONS OF COMMISSIONER OF PATENTS IN:

Hicks, July, 1876. 10 O. G. 112.
Phillips, July, 1877. 12 O. G. 311.

IN STATE COURTS IN :

Dice v. Joliet Mnfg. Co., May, 1882. 11 Bradw. (Ill.) 109.

Syllabus.

THE WOOD PAPER PATENT.*

THE AMERICAN WOOD PAPER COMPANY, APPELLANT, v.
THE FIBER DISINTEGRATING COMPANY; AND THE FIBER
DISINTEGRATING COMPANY, APPELLANT, v. THE AMERI-
CAN WOOD PAPER COMPANY.

23 Wall. 566-607. Oct. Term, 1874.†

[Bk. 23, L. ed. 31], •

Affirming *Ibid*, 6 Blatch. 27.

Argued October 30, 31, 1873. Decided January 26, 1874.

Process and product—patentability. Novelty. Prior imperfect experiments. Particular patents construed. Infringement.

- 1.‡ A manufacture or a product of a process may be no novelty and therefore, unpatentable, while the process or agency by which it is produced may be both new and useful. (p. 251.)
- 2.‡ In cases of chemical inventions, when the manufacture claimed as novel is not a new composition of matter, but an extract obtained by the decomposition or disintegration of material substances, it is of no importance, in considering its patentability to enquire from what it has been extracted. (p. 251.)
- 3.‡ When the substance of two articles produced by different processes is the same, and their uses are the same, they cannot be considered different manufactures. (p. 251.)
4. Reissued letters patent No. 1,448, Watt & Burgess, April 7, 1863, Paper Pulp, Manufacture, Product, original patent No. 11,343, July 18, 1854, for a pulp suitable for the manufacture of paper made from wood or other vegetable substances, *held void* for want of novelty in view of the fact that paper pulp extracted from wood by chemical agencies alone, is not a different manufacture from paper pulp obtained from vegetable substances by chemical and mechanical processes. (p. 251.)

*See Explanation of Notes, page III.

† Term date given in Official Reporter.

‡ Head notes by Mr. Justice STRONG.

Statement of the case.

5. *Semble* that the doctrine that the patent of an originator of a complete and successful invention cannot be avoided by proof of any number of incomplete and imperfect experiments made by others at an earlier date, though the experimenters may have had the idea of the invention, and may have made partially successful efforts to embody it in a practical form, applies to patents for chemical products as well as for machines. (p. 253.)
6. Reissued letters patent No. 1 449, Watt & Burgess, April 7, 1863, Manufacture of Paper Pulp, Process, *construed* to be for a single-step process, and *held* in view of original patent No. 11,343, July 18, 1854, for a process of three steps not to be for the same invention, and void. (p. 255.)
7. Letters patent No. 25,418, M. L. Keen, September 18, 1859, Boiler for making Paper Pulp from Wood, and No. 38,901, M. L. Keen, June 16, 1863, Boiler for making Paper Pulp *construed* to be for combinations and *held* not infringed. (p. 259.)
8. Letters patent No. 17,387, M. A. C. Mellier, May 26, 1857, Paper Pulp Process *construed* and *held* A† that the patent covers the process claimed when applied to wood as well as when applied to straw. B The internal pressure as described in the specification, is to be ascertained by deducting from the pressure marked by the steam gauge, the weight of one atmosphere, and *held* infringed. (p. 263.)

[Citations in opinion of the Court:]

Young v. Fernie, 10 Law T. (N. S.) 861. p. 255.

Buchanan v. Howland, 2 Fish. 341. p. 264.

Appeals from the Circuit Court of the United States for the Eastern District of New York.

The American Wood Paper Company of Rhode Island is the owner of patented inventions for the manufacture of paper pulp and paper from wood, straw and other vegetable substances. These patents are alleged to have been infringed by the Fiber Disintegrating Company, a New York corporation, having a factory at South Brooklyn, in the Eastern District of New York. This suit in equity was

Statement of the case.

brought in the court below, by the first named company, to restrain these alleged infringements on the part of the second named company, and for damages. The bill set forth the title of the complainant to five several letters patent and averred that the inventions therein described are capable of being used conjointly in the production of paper pulp, and that they had been so used by the defendant. These five patents are known as the Watt & Burgess reissued patents (two), the Keene boiler patents (two), and the Mellier patent.

The original of the first two patents was granted to Watt & Burgess, July 18, 1854, and antedated August 19, 1853, the date of an English patent. The claim of this patent was "For the pulping and disintegrating of shavings of wood and other similar vegetable matter, for making paper by treating them with caustic alkali, chlorine simple, or its compounds with oxygen and alkali, in the order substantially as described." This patent was subsequently surrendered by William F. Ladd and Morris L. Keene, being the owners of the same, and reissued to them October 5, 1868. It was again surrendered by Ladd and Keene, and two patents issued to them in lieu thereof, April 7, 1863. One of these patents was for a process, the other for a product. The complainants are the assignees of these patents.

The Keene boiler patents were granted to Morris L. Keene for improvements in boilers for making paper pulp. One of these patents was granted September 14, 1859, and the other June 16, 1863. The complainants are the assignees of these patents.

The Mellier patent was granted May 26, 1857, and antedated August 7, 1854, the date of the first patent for the same invention. The patent is for an improvement in the manufacture of paper pulp. The complainants are also the assignees of this patent.

A further description of each of the patents involved in this case may be found in the opinion.

The decree of the court below declared the Watt & Bur-

Statement of the case.

gess patents void for want of novelty. The Mellier patent was found to be a good and valid patent, and the defendants were found to be infringers of it. The decree further declared that the defendants were not infringers of the Keene patent. See 6 Blatchf. 27.

The complainants appealed from so much of the decree as relates to the Watt & Burgess and Keene patents, and the defendants appealed from that part of the decree which sustained the complainants' bill as to the Mellier patent.

The specifications and drawings of the various letters patent referred to are as follows :

**CHARLES WATT AND HUGH BURGESS, LONDON,
ENGLAND.**

**IMPROVEMENT IN THE MANUFACTURE OF PAPER FROM
WOOD.**

Specification forming part of Letters Patent No. 11,343, dated
July 18, 1854.

To all whom it may concern :

Be it known that we, Charles Watt, of the city of London, in the county of Middlesex, and Hugh Burgess, of the city of London, in the county of Middlesex, and Kingdom of Great Britain, have invented, made, and applied to use certain Improvements in Pulping and Disintegrating Vegetable Substances, for which letters patent have been granted to us by Her Majesty the Queen of Great Britain, bearing date the 19th day of August, 1853; and we do hereby declare that the following specification (being the same on which letters patent were granted) is a full, clear, and exact description of the same.

The wood or vegetable substances upon which it is intended to operate by this process should first be reduced to very fine shavings or cuttings—the finer the better. This

Statement of the case.

may be done in any suitable machine. The shavings are then to be boiled in a solution of caustic alkali, the strength of which, being dependent on the nature of the vegetable substance operated on, can only be learned by experience. For deal or fir wood we find that a solution of alkali of the strength indicated by 12° of the English hydrometer answers very well. The length of time necessary for this part of the process is somewhat dependent on the nature of the vegetable substance to be treated. We find boiling in a solution of caustic alkali under pressure of considerable service. We do not claim this operation as a part of our invention. The shavings are then to be well washed and pressed, and the washings may be saved and evaporated down and burned in a suitable furnace, when they are again available for the same purpose. The damp shavings are now to be exposed to the action of chlorine, or the compounds of chlorine with oxygen, till, on a portion being placed in a dilute solution of caustic alkali, the vegetable substance falls into a dark pulpy mass. This part of the process is conveniently effected by placing the damp shavings on racks or drawers about nine inches apart, one above another, arranged in a chamber, and allowing the chlorine, or the compounds of chlorine with oxygen, to enter the chamber and fill it. Of the compounds of chlorine with oxygen, we prefer that known as protoxide of chlorine, or hypochlorous or chlorous acid, or euchlorine.

If found more convenient, the chlorine, or the compounds of chlorine with oxygen, may be used in aqueous solution instead of the gaseous form.

As soon as the shavings have been sufficiently acted upon by the gas, as may be ascertained by the method above described, they may be removed and the hydrochloric acid, which is the result of the above process, removed by washing, and the shavings well pressed. This should be done with as little water as possible, as this acid may be saved and made use of for the reproduction of chlorine. The shavings are now to be placed in a weak solution of caus-

Statement of the case.

tic alkali, when they will fall into a pulpy mass of a dark brown color. This part of the process may be expedited by exposing the mass to the action of a beater or "engine" placed in the tank containing the solution of alkali.

The pulp obtained as above described, having been freed from the alkali by washing (which may be saved as before directed), may now be bleached by the usual process, or, as we prefer, by chloride or hydrochloride of soda or potash, liberating the chlorous or hypochlorous acid by hydrochloric acid.

Having thus fully described the nature of our invention and shown how the same may be reduced to practice, we wish it to be distinctly understood that we do not confine our claim to the apparatus or utensils or the manipulations herein named, as they may be varied to suit the circumstances of the case; but

What we do claim as our invention, and desire to secure by letters patent, is—

The pulping and disintegrating of shavings of wood and other similar vegetable matter for making paper by treating them with caustic alkali, chlorine, simple or its compound with oxygen, and alkali, in the order substantially as described.

In witness whereof we have hereunto set our signatures this 6th day of January, in the year 1854, in the presence of two subscribing witnesses.

CHARLES WATT,
HUGH BURGESS.

Witnesses:

WILLIAM LEWIS,

8 St. Albans Terrace, Kensington.

JOHN WATT,

1 Ampton Street, Gray's Inn Road.

Statement of the case.

WILLIAM F. LADD, OF NEW YORK, N. Y., AND
MORRIS L. KEEN, OF PHILADELPHIA, PA., AS-
SIGNEES, BY MESNE ASSIGNMENTS, OF CHAS.
WATT AND HUGH BURGESS.

IMPROVED PULP FROM WOOD, ETC., FOR THE MANUFACT-
URE OF PAPER.

Specification forming part of Letters Patent No. 11,343, dated
July 18, 1854; antedated August 19, 1853; Reissue No. 608,
dated October 5, 1858; Reissue No. 1,448, dated April 7, 1863.

DIVISION A.

To all whom it may concern :

Be it known that Charles Watt and Hugh Burgess, of London, England, did invent a new and useful Improvement in the Manufacture of Paper Pulp from Wood and other Vegetable Substance ; and we do hereby declare that the following is a full, clear, and exact description thereof.

The wood or vegetable substance from which it is intended to make the pulp should first be reduced to fine shavings or cuttings. This may be done in any suitable machine. The shavings or cuttings of wood or the vegetable substances are then to be boiled in a solution of caustic alkali, in a suitable boiler, under pressure. The strength of the alkali is dependent on the nature of the vegetable substance used and operated upon. For non-resinous woods a solution of alkali of the strength indicated by 17° of the English hydrometer, or thereabout, answers very well, and for deal, pine, or fir wood, or other woods containing resinous matter, a strength of about 12° is sufficient, but varying, with the nature of the vegetable substance being acted upon, to a strength of about 10°. The very nature of the vegetable substance to be operated upon is such that only general directions can be given for the strength of the alkali, or the degree of heat to be used, or the duration of the operation. Boiling in a solu-

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tion of caustic alkali under pressure is of essential importance. By the words "under pressure" is meant a pressure at, near, or above 300° of Fahrenheit's scale, which is the ordinary pressure used; but a heat and corresponding pressure of from 300° to 500° may be used, according to the nature of the vegetable substance to be treated, whether resinous or non-resinous or otherwise, and the time may be from four to twelve hours, according to the nature of the substance. After the vegetable substance has been thus operated upon by caustic alkali under heat and pressure for the requisite time, as above described, it should be discharged from the boiler while under pressure into a tank or other reservoir with proper safety-valves and pipes for the discharge of the steam, and should be drawn, as soon as the steam shall have escaped, into open vats, where it can be operated upon in the next stage of the process; or it may be drawn directly into the vats from the boiler. The vats which receive the wood shavings or cuttings or other vegetable substances being formed into pulp should be constructed with suitable means of drainage. The alkaline solutions must then be removed from the pulp either by percolation and subsequent washing in the vats or by pressure in any convenient apparatus and subsequent washing. The mode of percolation has generally been found sufficient. The alkaline solutions thus obtained may be saved and evaporated down, and the residuum burned in a furnace suitably constructed, so as to prepare the alkaline substances for use in a repetition of the same process. The alkaline solutions having been removed by percolation and washing or by pressure and washing, the wet mass of woody or vegetable pulp is now to be exposed to the action of chlorine, or the compounds of chlorine with oxygen, for the purpose of bleaching it and preparing it for the manufacture of white paper. Brown, colored, or unbleached paper of good quality can be produced from the pulp as soon as the alkaline solutions are removed; but for the production of good white paper it is necessary to subject

Statement of the case.

the pulp to the bleaching process. If the material used be wood or vegetable substance of a non-resinous nature, the pulp may be bleached by subjecting it to the action of chlorine in a gaseous form, or, which is preferable in this case, in an aqueous solution in any of the common and well-known modes. If the wood or vegetable substance be of a resinous nature, the alkaline solutions should be removed by the mode above described, and the pulpy mass should be exposed to the action of chlorine or its compounds with oxygen. This may be done by placing the pulpy mass of woody or vegetable substance on racks or drawers arranged in a chamber, and applying chlorine or its compounds with oxygen in the gaseous form, which with resinous substances is preferable to the aqueous solution, until the mass is sufficiently acted upon. The mass must then be again well washed, and treated with a weak solution of caustic alkali (warm preferred), which changes the red color to a dark brown. The alkaline solution should then be removed by washing, and the resulting gray pulp may be bleached by any ordinary method of bleaching.

What we claim in this patent as the invention of Charles Watt and Hugh Burgess, as a new article of manufacture, is—

A pulp suitable for the manufacture of paper, made from wood or other vegetable substances by boiling the wood or other vegetable substance in an alkali under pressure, substantially as described.

WILLIAM F. LADD,
MORRIS L. KEEN.

Witnesses to W. F. Ladd:

JONATHAN S. ODELL,
SAMUEL COLES.

Witnesses to M. L. Keen:

GEO. C. WARD,
PATRICK WARD.

Statement of the case.

WILLIAM. F. LADD, OF NEW YORK, N. Y., AND
MORRIS L. KEEN, OF PHILADELPHIA, PA., AS-
SIGNEES, BY MESNE ASSIGNMENTS, OF CHAS.
WATT AND HUGH BURGESS.

IMPROVED PROCESS OF TREATING WOOD OR OTHER VEGE-
TABLE SUBSTANCE IN THE MANUFACTURE OF PAPER-
PULP.

Specification forming part of Letters Patent No, 11,843, dated
July 18, 1854; Reissue No. 608, dated October 5, 1858; ante-
dated August 19, 1853; Reissue No. 1,449, dated April 1, 1863.

DIVISION B.

To all whom it may concern :

Be it known that Charles Watt and Hugh Burgess, of London, England, did invent, make and apply to use certain Improvements in Pulping and Disintegrating Wood and other Vegetable Substances (for which Letters Patent were granted to them by Her Majesty the Queen of Great Britain, bearing date the 19th of August, 1853); and we do hereby declare that the following is a full, clear, and exact description of said invention and of the mode of carrying out the same in practice.

The wood or vegetable substances upon which it is intended to operate by this process should first be reduced to fine shavings or cuttings. This may be done in any suitable machine. The shavings or cuttings of wood, or the vegetable substances, are then to be boiled in a solution of caustic alkali, in a suitable boiler, under pressure. The strength of the alkali is dependent on the nature of the vegetable substance used and operated upon. For non-resinous woods a solution of alkali of the strength indicated by 17° of the English hydrometer, or thereabout, answers very well, and for deal, pine or fir wood, or other

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woods containing resinous matter, a strength of about 12° is sufficient, but varying, with the nature of the vegetable substance being acted upon, to a strength of about 10°. The varied nature of the vegetable substance to be operated upon is such that only general directions can be given for the strength of the alkali, or the degree of heat to be used, or the duration of the operation. Boiling in a solution of caustic alkali under pressure is of essential importance. By the words "under pressure" is meant a pressure at, near or above 300° of Fahrenheit's scale, which is the ordinary pressure used; but a heat and corresponding pressure of from 300° to 500° may be used, according to the nature of the vegetable substance to be treated, whether resinous or non-resinous, or otherwise, and the time may be from four to twelve hours, according to the nature of the substance. After the vegetable substance has been thus operated upon by caustic alkali under heat and pressure for the requisite time, as above described, it should be discharged from the boiler while under pressure into a tank or other reservoir with proper safety-valves and pipes for the discharge of the steam, and should be drawn, as soon as the steam shall have escaped, into open vats, where it can be operated upon in the next stage of the process; or it may be drawn directly into the vats from the boiler. The vats which receive the wood shavings or cuttings, or other vegetable substances being formed into pulp, should be constructed with suitable means of drainage. The alkaline solutions must then be removed from the pulp either by percolation and subsequent washing in the vats or by pressure in any convenient apparatus and subsequent washing. The mode by percolation has generally been found sufficient. The alkaline solutions thus obtained may be saved and evaporated down, and the residuum burned in a furnace suitably constructed, so as to prepare the alkaline substances for use in a repetition of the same process. The alkaline solutions having been removed by percolation and washing or by pressure and washing, the wet mass of woody or vegetable

Statement of the case.

pulp is now to be exposed to the action of chlorine, or the compounds of chlorine with oxygen, for the purpose of bleaching it and preparing it for the manufacture of white paper. Brown, colored, or unbleached paper of a good quality can be produced from the pulp as soon as the alkaline solutions are removed ; but for the production of good white paper it is necessary to subject the pulp to the bleaching process. If the material used be wood or vegetable substance of a non-resinous nature, the pulp may be bleached by subjecting it to the action of chlorine in a gaseous form, or, which is preferable in this case, in an aqueous solution, in any of the common and well-known modes. If the wood or vegetable substance be of a resinous nature, the alkaline solutions should be removed by the mode above described, and the pulpy mass should be exposed to the action of chlorine or its compounds with oxygen. This may be done by placing the pulpy mass of woody or vegetable substance on racks or drawers arranged in a chamber, and applying chlorine or its compounds with oxygen in the gaseous form, which with resinous substances is preferable to the aqueous solution, until the mass is sufficiently acted upon. The mass must then be again well washed and treated with a weak solution of caustic alkali, (warm preferred), which changes the red color to a dark brown. The alkaline solution should then be removed by washing, and the resulting gray pulp may be bleached by any ordinary method of bleaching.

What we claim as the invention of Charles Watt and Hugh Burgess, is--

1. The process of treating wood or other vegetable substance by boiling in an alkali under pressure, as a process or preparatory process for making pulp for the manufacture of paper from such woods or other vegetable substances, substantially as described.

2. The process of treating resinous woods by boiling in an alkali under pressure, and treating the product with chlorine and its compounds with oxygen for making white

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pulp for the manufacture of paper from such woods, substantially as described.

MORRIS L. KEEN,
WILLIAM F. LADD.

Witnesses to W. F. Ladd:

JONATHAN S. ODELL,
SAMUEL COLES.

Witnesses to M. L. Keen:

GEO. C. WARD,
PATRICK WARD.

M. A. C. MELLIER, OF PARIS, FRANCE.

Letters Patent No. 17,387, dated May 26, 1857; patented in France, August 7, 1854; patented in England, October 26, 1855.

The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known, that I, Marie Amédée Charles Mellier, of Paris, in the Empire of France, have made an invention for an improvement in the manufacture of paper, and I do hereby declare that the following is a full and exact description.

The invention has for its object a peculiar process for treating of straw and other vegetable fibrous materials requiring like treatment, preparatory to the use of such fibers in the manufacture of paper, and the improvement consists in subjecting straw or such other fibrous materials to a pressure of at least seventy pounds on the square inch when boiling such fibrous matter in a solution of caustic alkali. For this purpose the straw or fibrous matters are cut into short lengths, soaked in warm water and washed. They are then placed in a suitable boiler, and I use for such purpose a rotary boiler provided with a coil

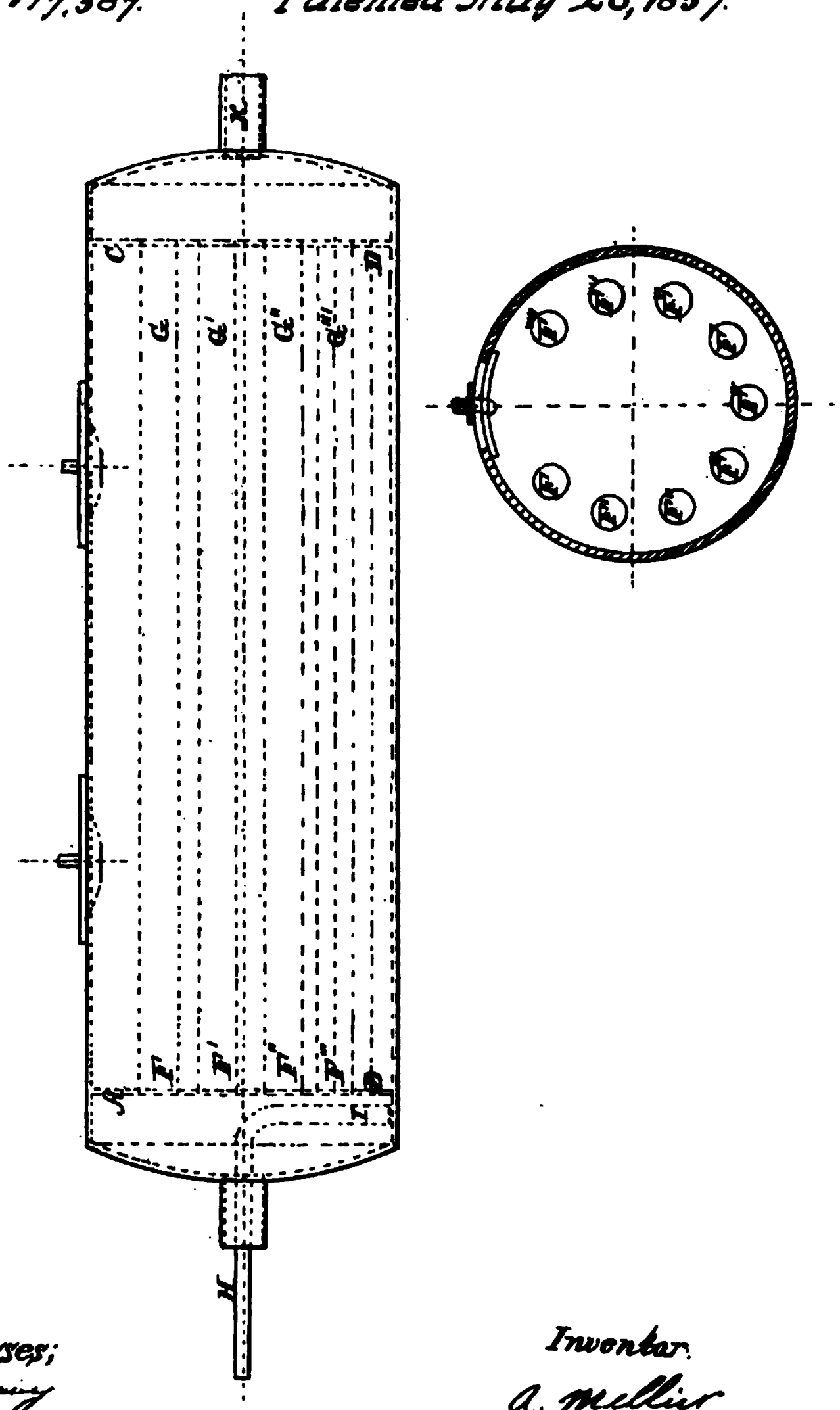
Statement of the case.

or coils of steam pipe for the purpose of heating the contents; and I prefer that the boiling should be carried on at a temperature to produce at or above 80 lbs.; on the square inch in the boiler, where are the fibrous materials to be acted upon, but so high a temperature is not absolutely necessary. For I have found by experiment that it is essential that a temperature equivalent to seventy pounds on the square inch must be employed. The quantity of alkali used is at the rate of about 16 per cent. of caustic or potash, of the straw or fibrous substance under process. The fibers may then be bleached by the use of a comparatively small quantity of bleaching powder or chloride of lime.

To enable others skilled in the art to make and use my invention, I will proceed to describe more fully the manner of using the same:—The straw or other fibrous material requiring a like process to prepare the same for the paper manufacturer is, first, as heretofore, to be cut in a chaff cutting or other machine, into short lengths, and to be freed from knots, dirt and dust, and then steeped for a few hours in hot water. The straw or fibrous materials and a weak solution of caustic alkali are then to be placed in a suitable close boiler heated by steam as hereafter explained, and the heat is to be raised to such a degree as to attain and maintain for a time a pressure internally of the boiler equal to or exceeding seventy pounds on the square inch that is about 310° of Fahrenheit, by which means a considerable saving of alkali, as well as time and fuel, results, as compared with the means of using a hot solution of caustic alkali, as now practiced in preparing straw and other fibers for paper makers.

The boiler employed for the purpose, and the manner of heating it by steam may be varied, but first, it must have a rotary motion either on its long or on its small axis by means which are very well known; and, secondly, I prefer not to send the steam directly into the liquid in which the materials are immersed, but to pass it either in a jacket

M. A. C. Mellier.
Pulp Digester.
Nº 17,387. Patented May 26, 1857.



Witnesses;
Schwartz
C. S. Buchanan

Inventor.
A. Mellier
V. Beaumont
attorney

Statement of the case.

around the boiler, or through a coil or a system of steam pipes inside of it, so that the steam does not mix with the caustic alkaline solution in the middle portion of the boiler, but is kept separate and does not, therefore, in condensing dilute the caustic alkaline solution used.

The plan of construction of the boiler I would recommend would be, if the boiler is to rotate vertically or on its small axis, as very well known, to cover it with a jacket, so that the steam could circulate from one end to the other between the two plates; or rather, if it is to revolve horizontally, or upon its long axis, as is equally very well known, to fix near each end of the boiler, and inside of it, a diaphragm or partition, which partitions are connected together by numerous tubes, which are arranged in a circle near the outer circumference of each partition. By this arrangement the steam is introduced through the hollow axis at one end of the boiler, and it passes through the steam pipes, and thence into the compartment at the other end of the boiler, where it and the condensed steam are conveyed away as is well understood through the other hollow axis.

In adopting the plan of not sending directly the steam into the boiler, I found the three following advantages: 1st. Not to dilute, as I have already said, the alkaline solutions. 2dly. To avoid the trouble of having sometimes the end of the steam pipe in the boiler choked with straw, and to prevent, in case that, by one cause or another, the pressure in the steam boiler would fall under the degree of the pressure in the straw boiler, the priming of the first by the second, viz: the absorption of straw and alkaline solution from the straw boiler. 3dly. The greater facility of cooling the straw boiler, when the pressure has been maintained for a sufficient length of time by means of turning off the steam at one end, letting it at the other end out of the jacket, or of the coils or steam pipes just described, and passing through the same a stream of cold water, which at the same time that it cools the mass, furnishes a quantity of cold water which can be received in convenient vessels,

Statement of the case.

and will be found very useful for washing the straw or other fibrous material after boiling.

By means of submitting the straw or similar fibrous materials to a pressure of between 70 to 84 pounds on the square inch inside of the boiler, I can reduce considerably the proportion of alkaline, and the solution which I prefer to use is to be from two to three degrees of Baumé, or of a specific gravity of from 1.013 to 1.020, and at the rate of about 70 gallons of such solution to each cwt. of straw or other fibrous vegetable matters requiring the like treatment.

The boiler is to be filled with straw, and the alkaline solution and then closed fluid and steam tight. The boiler is made to revolve slowly, say about one or two revolutions per minute, and the steam is to be admitted. I find it desirable to keep up the heat and pressure during about three hours after the pressure above mentioned has been obtained, when the process of boiling is complete. A steam gauge properly fixed upon the boiler will enable one to ascertain when the pressure has attained the required degree.

When the apparatus and the fibres under process have been cooled by the means herein before mentioned, or rather, when the pressure has been reduced to nothing, I open the man hole of the boiler, empty the materials in suitable vessels, and wash them first with hot water, then with cold water, until the liquor runs perfectly clear. I then steep the fiber for about an hour in hot water acidulated with a quantity of sulphuric acid equal to about 2 per cent. of the weight of the fibers under process, and finally the washing is completed with cold water. The straw or fiber may then be bleached in the ordinary manner and it will be found to be accomplished by a comparatively small quantity of chloride of lime.

Having thus described the nature of my said invention and the manner of performing the same, I would have it understood that I do not claim the the general use of caustic alkaline solutions, nor the employment generally of a

Statement of the case.

close boiler for boiling straw or other vegetable fibrous substances.

But what I claim as my invention and desire to secure by letters patent is, the use of a solution of caustic soda (Na. O.) in a compartment of a rotary vessel separate from that which contains the steam heat, substantially as described.

I also claim the within described process for bleaching straw, consisting in boiling it in a solution of pure caustic soda (Na. O.) from 2° to 3° Baumé, at a temperature no less than 310° Fahrenheit, after it has been soaked and cleaned, and before submitting it to the action of a solution of chloride of lime from 1 to 1½ degrees substantially as described.

AM. MELLIER.

Witnesses.

ALLEMEE,
E. MARZIG.

MORRIS L. KEEN, OF ROYER'S FORD, PA.

Letters Patent, No. 25,418, dated September 13, 1859.

The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, Morris L. Keen, of Royer's Ford, in the county of Montgomery, and State of Pennsylvania, have invented certain new and useful Improvements in Boilers for Boiling Wood or Ligneous Materials for making paper pulp under pressure, and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Fig. 1, represents a perspective view of said boiler.

Statement of the case.

boiled, the plate, *d*, is prevented from rising by the upper end of the rod, N, being in contact with the lower face of the cover, D; O, represents try cocks by which the material in the boiler can be tried, to what degree of perfection the stock is worked.

The operation is as follows: The boiler being charged with the proper solution of caustic alkali or other suitable fluid and with the material which is to be reduced to pulp the plate, *d*, is placed upon it, and the cover, D, is screwed down tightly; the boiler, A, is then heated, either by a direct fire, or by any other heating apparatus, and the mass in the boiler is boiled and stirred until thoroughly disintegrated; during this process the steam arising from the fluid rises through the perforated plate, *d*, and fills the expansion chamber, C, whence it exerts a pressure upon the boiling mass in the boiler.

When the stock has been reduced to the desired perfection the stop cock, G, is opened by means of the hand-wheel, F, and the entire mass is blown, by the pressure of the steam in the expansion chamber and boiler, through the pipe, E, as a pulp, into an open tank adjacent to the boiler, A. The expansion chamber, C, may be provided with a pipe leading to a steam gauge to indicate the pressure of steam in the boiler.

Having thus described my invention, what I claim is, a boiler for boiling under pressure, wood and ligneous materials for making paper pulp, constructed with an expansion chamber, stirrers and discharge valve or cock, arranged for the purposes and in the manner substantially as herein stated.

MORRIS L. KEEN.

Witnesses:

EPHRAIM MILLER,
HUGH BURGESS

Statement of the case.

MORRIS L. KEEN, OF ROYER'S FORD, PA.

IMPROVED BOILER FOR MAKING PAPER-PULP.

Specification forming part of Letters Patent No. 38,901, dated
June 16, 1863.

To all whom it may concern :

Be it known that I, Morris L. Keen, of Royer's Ford, in the county of Montgomery, and State of Pennsylvania, have invented certain new and useful Improvements in Boilers for Making Paper-Pulp ; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, and which represents the boiler in elevation, with a portion of its upper part represented in section, to show the interior arrangement thereof.

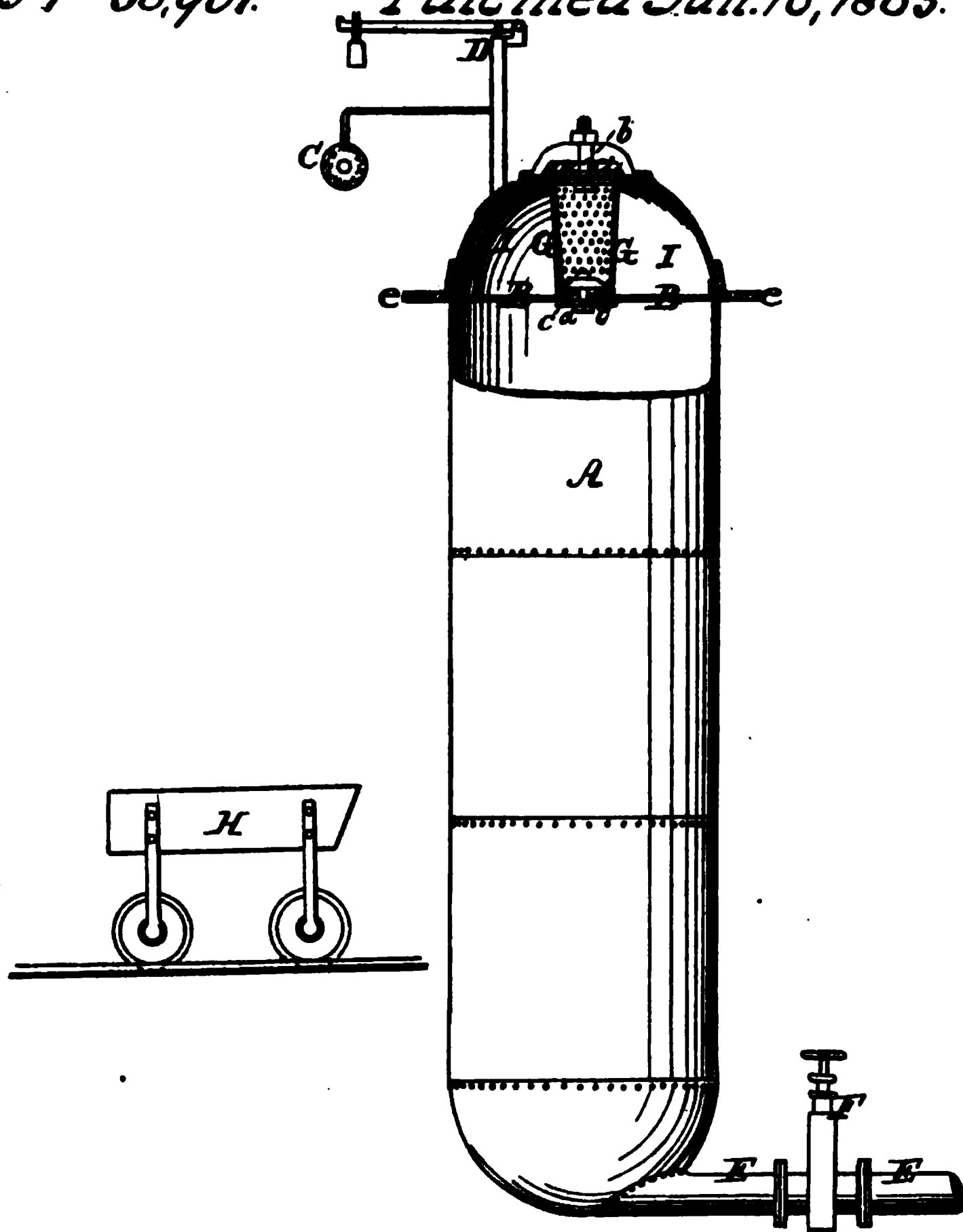
In boilers where a perforated diaphragm is placed in the interior, and through which diaphragm the material out of which the pulp is to be made is to be charged into the cylinder, it is found that the material falling upon the diaphragm chokes up its openings, and, moreover, gets above or on top of the liquid, which it is the special object of the diaphragm to prevent. My object and purpose is to prevent this difficulty, and I have achieved it in a very simple manner.

My invention consists in connecting the man or feed hole in the shell of the boiler with the man or feed hole through the diaphragm by a perforated well or cylinder, so that the material can be charged through said well into the boiler without falling upon or clogging the perforated diaphragm.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same, by reference to the drawings.

A represents a boiler, which stands vertically in the furnace or brick-work, and which for strength and convenience has hemispherical ends, its body being cylindrical.

M.L. Keen.
Pulp Digester.
N^o 38,901. Patented Jun. 16, 1863.



Witnesses;
A. B. Stoughton
Harv. Fensholt.

Inventor;
Monis L. Keen

Statement of the case.

This boiler is suspended to the brick-work or foundation by flanges *e*, so that it may expand and contract without loosening itself in the foundation or its support. In the interior of the boiler, near its upper end, there is placed a perforated diaphragm, *B*, through the center of which there is an opening, *c c*, and at the top or crown of the boiler there is also a man or feed hole or opening, *a a*, and these two openings, *a c*, are connected by a perforated well or cylinder, *G*, to act as guide for the material being charged into the boiler and to prevent it from falling upon the perforated diaphragm, and thus not only choking its openings but getting on top of the liquid, which it is important to avoid as damaging to the pulp. The openings *a c* are respectively closed after the boiler is charged by the covers *b d*, which may be secured in any of the known ways of securing man-hole covers in steam-boilers. Above the perforated diaphragm *B* there is an expansion chamber, *I*, into which the liquid contents of the boiler expand when the fire is applied to the boiler, while the perforated diaphragm *B* keeps the crude material always submerged.

E is a discharge-pipe at the bottom of the boiler *A*, and *F*, a stop or discharge valve for blowing out the contents of the boiler while under pressure when said contents have been sufficiently boiled.

C is a steam-indicator and *D* a safety-valve, of any of the common constructions, and instead of their being placed at the top of the boiler they may be brought down to any convenient position or locality near the attendant, so as to be readily observed by him.

The boiler may be heated by the direct application of fire, or by any other convenient or known mode, but I prefer to use a direct application of the heat, and for this purpose use a fire car or truck, *H*, on wheels, which is withdrawn when the boiler is to be discharged and replaced immediately after the boiler is again refilled for service.

Having thus fully described the nature, object, and pur-

Argument of counsel.

pose of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. A boiler provided with a perforated diaphragm and well, or their substantial equivalents, arranged in the manner and for the purpose described.

2. In combination with the boiler, the arrangement of the discharge pipe and valve for the purpose of blowing out or discharging the contents of the boiler, under pressure, substantially as and for the purpose set forth.

MORRIS L. KEEN.

Witnesses :

JAMES THOMPSON,

ELIJAH SHARP.

Mr. T. A. Jenckes, for the American Wood Paper Company:

The Watt & Burgess Patents.

The court below erred in its findings of the law and the facts upon which its decision is based as to the validity of these patents, on the ground of want of novelty in the invention.

The specifications of the two reissued Watt & Burgess patents described processes for obtaining from wood or other vegetable substances a fiber suitable for the manufacture of paper. The claim of one patent (1448) is for the fiber thus obtained as a new manufacture; the claim of the other (1449) for the processes by which the fiber is eliminated from the wood. These processes as described are two, one applicable to resinous woods, and one to non-resinous woods. The agencies by which this fiber is eliminated are purely chemical. They effect the entire removal of all the constituent elements of the wood except the fiber which is suitable for paper making; that is, the result or product is paper pulp, fit to be wrought at once into brown paper and, when bleached by old and well known processes, into white paper.

The fiber which is to be obtained from the wood is com-

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posed of what is termed in chemistry "cellulose." This and the other component parts of the structure of plants are well described in Regnault's Chemistry (secs. 1274 and 1275), which also contains the following definition of the term: "Chemists have given the name of cellulose to that constant substance which they regard as forming the cellular tissue of all plants." The agents by which all the other component parts of the plant are to be removed are heat and "caustic alkali."

By a solution of caustic alkali is meant a solution of the soda-ash of commerce, by the removal of the carbonic acid through the action of quicklime. The soda-ash is an impure carbonate of soda, and its carbonic acid unites with the lime and leaves the alkali in its caustic condition. The usual proportion in the solution is about a pound and a quarter of soda-ash to a gallon of water.

There are other re-agents used in the cleaning and bleaching of the cellulose, after it has been delivered from the boiler or vessel in which it has been cooked, such as hydrochloric acid, which is a compound of hydrogen and chlorine and the chlorous or hypo-chlorous acid which is a compound of chlorine and oxygen. The true agent in these portions of the processes is the chlorine, which is easily liberated from the substances with which it is combined when sold as an article of commerce.

The substances which are to be removed from the wood are called, as a whole, the intercellular matter.

The action of the caustic alkali, intensified by heat, is generally sufficient to destroy this intercellular matter, although sometimes the further action of chlorine is preferable, as described in the specifications.

The cellulose thus obtained from the wood is perfectly pure and, what is most remarkable and in which the novelty of the invention consists, this substance is of the exact consistency, length and other dimensions required in the fiber for paper making. Watt & Burgess were the first discoverers of this fact, and were the inventors of means to

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utilize this discovery and to produce by chemical agencies a fiber which could be wrought at once into paper, a better and cheaper article for the purpose than had before been produced by mechanical agencies.

It was previously known that the fibers of cotton or of flax, used in paper making were pure cellulose ; and it was known to chemists that cellulose, in some form and in some combination, existed in wood ; but it had never been eliminated from wood in a perfectly pure form, nor in a condition to be wrought into paper without mechanical treatment.

No witness, on behalf of the defendant, testified that any one of the processes to which reference was given in the answer of the defendants, either had produced or would produce pure cellulose from wood ; nor were any of the samples of paper produced by the defendant's witnesses analyzed by their experts, to ascertain the substances of which they were composed. It was not claimed that they were pure cellulose. It was proved by the complainant's witnesses, and not denied on the part of the defense, that the fiber described and claimed in reissued patent, No. 1448, and produced by the processes described and claimed in reissued patent No. 1449, is pure cellulose.

While the cause was pending in the court below, a cause involving similar issues upon the same patents was heard and decided in the Eastern District of Pennsylvania. The same error in law is to be found in the opinion of that court.

One of the errors in each of these opinions is in assuming that the patent of the originator of a complete, perfect and successful invention can be defeated by any number of incomplete and imperfect experiments made at an earlier date. "The settled rule of law is," says this court, in *Agawam Co. v. Jordan*, 7 Wall. 583 [8 Am. & Eng. 24], "that whoever first perfects a machine is entitled to the patent and is the real inventor ; although others may have previously had the idea, and made some experiments

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toward putting it in practice. He is the inventor and entitled to the patent, who first brought the machine to perfection, and made it capable of useful operation." See *Whiteley v. Swayne*, 7 Wall. 685 [8 Am. Eng. 70].

Neither of the judges below finds from reading the previous descriptions, that pure cellulose fit for the manufacture of white paper was ever produced from wood prior to 1853.

The thing produced by Watt & Burgess in its purity is not found, but only an *approximately pure* or *nearly pure* substance like it.

Another error was in assuming that there could have been, in point of law, no invention of a process requiring for its successful use at all times a graduation and adjustment of heat, strength and time, which could have been the subject of a patent, without the discovery and description of such graduation and adjustment. The fallacy of this position is apparent when we consider how many of the most valuable inventions were made before the invention of any methods of measuring heat, or strength of the chemical agents. The thermometer, hydrometer, and the pressure gauge, are all of recent date. Yet there are hundreds of inventions which require the use of heat and chemicals, which were perfected before either was discovered. Almost all chemical inventions are empirical in their origin, as the Supreme Court has recognized in *Tyler v. Boston*, 7 Wall. 327 [8 Am. & Eng. 1]; that is, a result is attained through chemical experiments, which could not have been foretold by *a priori* reasoning.

The cases upon patents for improvements in the arts by chemical inventions, reported in the books, are not numerous, but they all sustain the views now presented to the court.

See, Hall's Patent, Web. Pat. Cas. 97 [1 Am. & Eng. 363]; Derosne's Patent, Web. Pat. Case. 152 [2 Am. & Eng. 78]; Carpmael, Pat. Cas. 664; Neilson's Patent, Web. Pat. Cas. 273 [3 Am. & Eng. 355]; Crane's Patent, 375 [3 Am.

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& Eng. 437]; *Queen v. Neilson*, 665 [3 Am. & Eng. 491]; *Muntz's Patent*, 2 Web. Pat. Cas. 85 *et seq.* [3 Am. & Eng. 122]; *Electric Tel. Co. v. Brett*, 20 L. J. (N. S.) 123; Jur. 5, 9.

In the case of *Newton v. Grand Junc. R. R. Co.*, 20 L. J. (N. S.) Exch. 427, which was a chemical invention in part, it was determined that the use of a substantial part of that in which the invention consists constitutes an infringement of the patent.

In *Corning v. Burden*, 15 How. 252 [6 Am. & Eng. 69], we have the definition of a process, p. 267, and in *O'Reilly v. Morse*, 15 How., 62 [5 Am. Eng. 483], the interpretation of the Neilson patent, cited pp. 115, 117. In *Gayler v. Wilder*, 10 How. 477 [5 Am. & Eng. 188], which was a case upon a patent for an invention, chemical in part, the Supreme Court determined that a single prior use of the chemical discovery which had not attracted public attention, but had passed away and been forgotten, would not invalidate a patent for the same discovery by an original inventor, and that if such prior discovery is made and put in use abroad, it cannot be put in evidence to destroy a patent in this country, unless it has been made known to the world in some printed publication.

See, also, *Tilghman v. Werk*, 2 Fish. Pat. Cas. 229, *McLean and Leavitt, JJ.*; *Tilghman v. Mitchell*, 2 Fish. P. C. 518; *Nelson, J.*; *Hills v. Evans*, 8 Jur. N. S. 525; *Seymour v. Osborne*, 11 Wall. 516, 555 [8 Am. & Eng. 290].

The case of *Young v. Fernie*, 10 L. T. (N. S.) 861, is one of the first importance in relation to chemical inventions. The head note is as follows:

“Where a patent has been taken out for improvements in the mode of producing chemical substance, it is no bar to the legal validity of the patent, that the subject of the patent is a product already known to scientific men, provided that the patentee is the first person who has produced the substance in sufficient quantities to make it a marketable article.

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The inventor of a substance, within the meaning of the patent laws, is the man who discovers the mode of producing it in such a form and to such an extent as to make it useful to the public at large.

It is no bar to the validity of a patent for improvements in the mode of producing a particular substance, that similar processes have been employed to produce analogous substances, when the subject matter of the production is a chemical product, and the process is a chemical process.

When the subject matter of an alleged invention is an improvement of a chemical process for the production of a substance, a patent specifying a particular limit of temperature in a process may be valid."

See, *Hills v. London Gas-Light Co.*, 5 H. & N. 312; *Hills v. Evans*, 8 Jur. 526; *Steiner v. Heald*, 6 Exch. 607; *Muntz v. Foster*, 2 Web. Pat. Cas. 96.

The object or purpose is to be taken into view in the consideration of every chemical invention and the construction of the patent for such invention.

Mowry v. Whitney, 14 Wall. 620 [9 Am. & Eng. 1].

The finding of the court below is inconsistent, in matters of law, with these rules of law and of construction.

Two other defenses were fully argued in the court below, and will probably be reproduced here. These were: 1. That the patent was improperly reissued in two parts. 2. That the reissued patents are not for the same invention as the original patent. That the reissue was properly taken in two parts, is settled by the decision of this court in the case of *Rubber Co. v. Goodyear*, 9 Wall. 797 [8 Am. & Eng. 150], affirming a number of decisions made in the Circuit Court on the Goodyear patents.

The case cited also disposes of the defense, rather hinted at than taken, in the answers of the defendants, that the reissue of 1858, and the reissues Nos. 1,448 and 1,449, of 1863, were improvidently issued by the Commissioner of Patents, and were improperly obtained by the patentees.

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The reissued patents are for the same invention as the original patent.

The first requisite in every reissue is, that it should be for the same invention as the original ; and the first inquiry under this requisite has been held to be, whether the specifications are consistent or whether there is any positive conflict or inconsistency between them as a matter of law.

Sickles v. Evans, 2 Fish. Pat. Cas. 417; *Cahart v. Austin*, 2 Fish. Pat. Cas. 543 ; *Goodyear v. Rub. Co.*, 2 Fish. 499.

Whether this proposition is correct, as applicable to all cases of the reissue of patents, as well those of chemical as mechanical inventions, may be questioned ; but it is not important to question it in the present case. The specifications of both the original and the reissued patents relate to the manufacture of paper pulp from wood by purely chemical agencies. The pulp thus manufactured is identical in each. The chemical agencies are the same, heat and alkali, with or without chlorine ; and the sole question is, whether the inventor had the right to give the directions for the use of these agents, which we find in the reissues, for the production of the same article, the paper pulp described in the specification, and claimed as a new product in reissue No. 1448.

The reissues are, in point of fact, only more precise descriptions of the same invention and of the mode of working it.

The original specification of the American as well as of the English patent was defective in many particulars, among which are the following :

1. It did not set forth with sufficient distinctness the strength of the alkali to be used. This strength, it says, "Being dependent on the nature of the vegetable substances operated on, can only be learned by experience." It merely indicates that a certain strength for deal or fir wood "answers very well."

2. It does not set forth the length of time for which the boiling must take place, either for the open boiling or the

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pressure boiling. It is said to be "dependent on the nature of the vegetable substances to be treated."

3. When boiling under pressure is used, it does not state the amount of pressure nor the temperature which is found best fitted for producing the result.

4. It does not distinguish clearly between the results of the open boiling and the pressure boiling.

5. It does not give directions for the treatment of any other than resinous woods, deal or fir.

6. It does not set forth and claim the product, the pulp obtained, as a new manufacture.

7. It does not claim separately, both the open boiling and the pressure boiling.

8. It errs in using language concerning pressure boiling, which might be construed into a disclaimer, not only of the discovery of it, but of the advantages of its use.

Some portions of the specification are so uncertain and indistinct, that it is doubtful if it could have been sustained on account of its not giving sufficient directions for the use of the invention; and for the other reasons it might, too, have been declared inoperative and invalid. *Tyler v. Boston*, 7 Wall. 327 [8 Am. & Eng. 1].

The reissue of 1868 was designed to correct many of these uncertainties and omissions, and the carefully prepared reissues of 1863 were intended to remove the whole of them.

The first variation, about the size of shavings or cutting, is of not the slightest importance.

In the variations of the next paragraph from the original specification, four of the eight points, in which this specification was defective, are attempted to be corrected.

1. The omission to state the difference in treatment required between resinous and non-resinous woods.

2. The omission to state the strength of the alkaline solutions required for the two kinds of woods.

3. The omissions to state with precision the kind of vessel in which the boiling should take place; and,

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4. The omission to state whether pressure or open boiling was the better.

Thus, the first new phrase of any significance directs that "The boiling should take place in a suitable boiler, under pressure." The second points out the difference in the treatment of resinous and non-resinous woods, and indicates the strength of alkali for each. The omissions to state the different mode of treatment required for non-resinous woods was a clear defect, which it is the province of a reissue to supply.

The next alteration is in the substitution of the words "essential importance" for "considerable service." The words "service" and "importance" are used as synonymous. When the quickest and most economical and, consequently, the best mode of using the invention, was by pressure boiling, the word first used was calculated to mislead, and it was the duty of the inventor to substitute a word which should not mislead. This is the whole effect of that alteration, which appears also in the first reissue.

Then follows a definition of the words "under pressure" which were in both the original and reissued patents, and a clause supplying an omission in the original patent, by giving a direction as to the time of conducting the operation. Without these amendments the original patent might have been declared inoperative and void.

Pressure, in performing the operation indicated in the original patent, could only be caused by heat; and if they knew the degree of heat or the number of pounds of pressure corresponding to the degree required for effecting the chemical changes, they were bound to set forth either one or the other or both, at the peril of losing the protection of their patent. If they did not know either at the time of taking their patent, but learned one or both from experience in working their invention, it was their duty to surrender the patent and amend the specification so as to include the knowledge which they had thus acquired. This is just what has been done in this case and no more; "under

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pressure" is a vague and indefinite phrase, and is now defined so as to be clear and certain in its meaning. The length of time, which was also left indefinite in the original specification, is made as specific as possible. A minimum and maximum are given both for the degree of heat and length of time. This amendment was made on the first re-issue.

The next addition is a direction of the best mode of removing the pulp from the boiler. This is no part of the invention or of the claims. It is merely directory as to the best mode of performing an operation incident to the use of the invention.

The phrase, "We do not claim this operation as a part of our invention," is dropped altogether. It means simply that they do not claim to have been the inventors of pressure boiling, and as no such pretension is made in the claim proper, it is mere surplusage in the specification.

In the original specification several phrases are used for one and the same substance. In the introduction, the invention is said to consist of improvements in pulping and disintegrating vegetable substances. In the claim, it is the pulping and disintegrating of shavings of wood and other similar vegetable matter. In the first paragraph of the specification, the material is spoken of as shavings or cuttings, and as shavings alone, and again as damp shavings; and the result is spoken of as a pulpy mass of dark brown color, and as the pulp thus obtained. In the amended specification, the synonymous phrases of wood and other vegetable substances and wet mass of woody or vegetable pulp, are uniformly used. This but a formal variation.

The remainder of the amended specifications is a further direction about the treatment of resinous and non-resinous woods. Non-resinous woods will be pulped at the first stage of the operation, and the pulp may be at once bleached and run into paper. For resinous woods the subsequent treatment is substantially the same as in the origi-

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nal specification. The most careful examination will not detect any material difference.

The second claim of the reissued patent is also substantially the same as that of the original patent, with the addition of the words "under pressure." The same reason existed for inserting the words here as in the direction about boiling. The second washing in alkali without pressure, was found to be of no importance, and it does not appear in the claim, although described in the specification.

The first claim is for the first boiling process by which non-resinous woods are pulped, and which is the preparatory process in the pulping of resinous woods.

No new or distinct invention is inserted, but the fact is stated that, with regard to non-resinous woods, the first treatment with alkali and a high degree of heat is sufficient to produce the pulp, and that the chlorine treatment is unnecessary. What the original specification describes as necessary for all kinds of woods, is, by the amended specification, confined to such woods as are mentioned in the original, viz.: deal and fir, and other resinous woods, and is stated not to be essential for non-resinous woods. The amendment consists in teaching the workmen, while working with non-resinous woods, to omit certain originally described operations as unnecessary. This proves, therefore, that the case was pre-eminently one for a reissue within section 13 of the act of 1836; for, by reason of a defective or insufficient description or specification, the patent might have been declared inoperative and invalid for the protection of the process of making pulp from non-resinous woods. The original patent took for its field of invention all kinds of wood; the reissued patent defines with greater precision the treatment for different kinds of wood, and the product—the result—remains the same—a wood pulp suitable for the manufacture of paper. By using more specific language in the reissue, the invention is narrowed, not enlarged.

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The true question, it is submitted, is, whether the original experiments were such as to enable the inventor to practice his invention and state the conditions of it intelligibly, and whether he has done more than to make a more accurate description of these conditions in his reissued patent. Of course Watt and Burgess did not know, and no other chemical inventors have ever known, all the conditions, and hence not the best conditions, for the practical use of their inventions, at the time when they first undertook to describe them. There is not an original patent for a chemical invention of any value that has not been defective and requiring reissue or disclaimer, for the reasons already stated. It is too much the custom with such inventors to rush at once to the Patent Office and obtain a patent upon crude and insufficient experiments and statements. But as a general rule, the inventor knows, better than anyone else, when his invention is accomplished ; when his experiments cease and his knowledge begins ; and in the absence of fraud or of any conflicting interest, his statement should be conclusive.

Another error of the adverse opinions is in confounding the weights, measures and details of the process with the result of the observation, with the invention itself. The process was completed before the hydrometer, the thermometer, the pressure gauge or the chronometer were applied to it. When the inventor discovered that perfect pulp could be produced in a short time by the action of alkali and high heat upon wood, at one operation, the invention had become accomplished. The subsequent graduation of these elements, to obtain the most economic results, might have been done by other persons as well as the inventor. They are merely methods of working the invention, which might have amounted to improvements, but which do not alter the character of the invention itself. And it sounds most strangely illogical to say that an inventor must lose the rewards due to a great and most valuable discovery because he has in a reissued patent de-

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scribed, with the particularity which the law requires him to do, the best methods of working his invention.

It is my view of the law, that when an inventor, and especially a chemical inventor, finds, in the course of working his invention, that he can give a better description of the details of it than he was originally able to give in his specification; that it is not merely his privilege but his duty to surrender the original patent and take a re-issue containing the more perfect description. Indeed it has been said by a learned judge in *French v. Rogers*, 1 Fish. Pat. Cas. 137, that "It is for the public interest that the surrender and reissue should be allowed to follow each other, just as often as the patentee is content to be more specific or more modest in his claims."

The Keen patents are for the boilers in which the wood is boiled in alkali under pressure. The first, dated September 13, 1859, claims a boiler of a peculiar construction, described, with an expansion chamber, stirrers and discharge valve or cock arranged for the purposes described. These purposes are: (1) For the boiling of the mass in the most thorough manner, keeping it stirred or in motion, so that all parts shall be acted upon by the heat equally. (2) For the discharge of the disintegrated mass under pressure through the discharge valve, into the tank where it is to be washed.

The second patent, dated June 16, 1863, is also for a boiler, to be used for the same general purpose as the first, but without the stirrers, and with an original arrangement of devices for charging, and also for blowing off the contents.

The infringement of these patents is proved by various witnesses. One witness says the "feed hole" was below the diaphragm, not through it. But the discharge cock was in the same place and performed the same duty as in Keen's.

The judge says: "There remain to be considered the two boiler patents which are set out in the bill. As to those,

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it seems sufficient to say that the first boiler patent of Keen, No. 25,418, is for a combination, of which the stirrers described are a material part. The evidence shows, however, that the stirrers are not used by the defendants. Not using the plaintiff's combination, they do not infringe their patent."

But the proof is clear that they had infringed the patent for a long period prior to the commencement of the suit by using the stirrers, as well as the rest of the combination. The proof of a single act of infringement, prior to the commencement of the suit, entitles the complainants to a decree.

He proceeds (6 Blatchf. 33): "The second boiler patent of 1863, No. 38,901, is for a combination of which the diaphragm and well are material parts. The defendants use no well with the diaphragm, but charge their boiler below the diaphragm. There is, then, no use of the plaintiffs' combination secured by the patent. So far, then, as the plaintiffs' case rests upon these two boiler patents, it must fail."

But this patent has two arrangements of devices in connection with the boiler for two very different purposes; one purpose is to charge the boiler so that there shall be no refuse or waste, and this is accomplished by making a feed-hole or well into the boiler through the diaphragm, so that the chips or other stock shall fall directly into the boiler when the cover is removed. Precisely the same purpose is accomplished in the defendants' boiler by making a feed-hole or well just below the diaphragm, and pushing the stock through it into the boiler. Here are the three elements of the combination: the boiler, the perforated diaphragm and the feed-hole, arranged so as to accomplish precisely the same purpose as in Keen's boiler, although not in so simple a manner. Each element is not only the "substantial equivalent" of the corresponding device in the other, but it is precisely the same, although the place, not the function, of one of the elements is changed. Con-

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struing the patent with the object of the invention in view *Mowry v. Whitney*, 14 Wall. 645 [9 Am. & Eng. 1], the combination of devices in the defendant's apparatus is precisely the same as that covered by the first claim of the Keen patent of 1863.

But there is another combination of devices in Keen's apparatus for a different purpose, and which is the subject of the second claim of the patent. That purpose is for the discharge of the contents of the boiler when the intercellular matter of the wood has been removed. The mode of charging the boiler, and the devices by which this charging has been accomplished, have nothing to do with this second object.

The boiler may have been filled in any manner, so that it be filled and its contents ready to be discharged. The well is certainly no part of this combination. It is not questioned that the devices for discharging the boilers in the defendant's apparatus are identical with those which are the subject of the second clause of this patent, and operate in combination in the same way and for the same object.

The Mellier Patent.

Although notice was given in the answer that reference would be made to Wright's patents, and to the extract from the *Central Blatte*, to prove the want of novelty in the invention patented by Mellier, yet, the experts called by the defendant have taken no such ground, and the validity of the Mellier patent stands unimpeached.

The only questions to be determined upon this patent, therefore, are those of construction and infringement. It is for a process, a new and useful improvement in making paper pulp.

“The straw or other fibrous materials requiring a like process to prepare the same for the paper manufacture, is first, as heretofore, to be cut in a chaff-cutting or other machine into short lengths, and to be freed from knots, dirt

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or dust, and then steeped for a few hours in hot water. The straw or fibrous materials and a weak solution of caustic alkali are then to be placed in a suitable close boiler, heated by steam, as hereinafter explained, and the heat is to be raised to such a degree as to attain and maintain for a time a pressure internally of the boiler, equal to or exceeding seventy pounds to the square inch—that is, about 310° of Fahrenheit—by which means a considerable saving of alkali, as well as time and fuel, results, as compared with the means of using a hot solution of caustic alkali, as now practiced in preparing straw and other fibers for paper makers.

By means of submitting the straw or other similar fibrous materials to the pressure of between 70 and 80 pounds to the square inch inside of the boiler, I can reduce considerably the proportion of alkali; and the solution which I prefer to use is to be from two to three degrees of Baumé, or of a specific gravity of from 1.013 to 1.020, and at the rate of about seventy gallons of such solution to each cwt. of straw or other fibrous vegetable matter requiring like treatment.”

The claims of the patent are as follows :

“ Having thus described the nature of my said invention, and the manner of performing the same, I would have it understood that I do not claim the general use of caustic alkaline solution, nor the employment generally of a close boiler for boiling straw or other vegetable fibrous substances.”

“ But what I claim as my invention, and desire to secure by letters patent, is the use of a solution of caustic soda (NaO) in a compartment of a rotary vessel separate from that which contains the steam heat, substantially as described.”

“ I also claim the within described process, for bleaching straw, consisting in boiling it in a solution of pure caustic soda (NaO) from 2° to 3° Baumé, at a temperature of not less 310° Fahrenheit, *after* it has been soaked and cleansed

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and before submitting it to the action of the solution of chloride of lime, from 1 to $1\frac{1}{2}$ degrees, substantially as described."

Some confusion has arisen in the construction of this specification, from the fact that it speaks of a pressure of seventy pounds being equivalent to a temperature of 310° . But the claim is confined to the temperature, and the pressure is spoken of only as a means of measuring it. The temperature of the contents of the boiler during its action cannot be readily measured by a thermometer, and it is generally ascertained by comparing the tables of steam pressure with the tables of temperature.

The oldest and best known of these is called "The French Tables." By these a pressure of seventy pounds corresponds very nearly to the temperature of 310° F. Mellier says: "The heat is to be raised (after the materials are placed in the boiler) to such a degree as to attain and maintain for a time a pressure internally of the boiler, equal to or exceeding seventy pounds on the square inch; that is, about 310° of Fahrenheit." etc.

In another part of the specification he says:

"A steam-gauge properly fixed upon the boiler will enable one to ascertain when the pressure has attained the required degree."

The claim is for the use of high temperature, and is not qualified or made obscure by the mode of measuring that temperature.

It appears that the French tables start from a vacuum at zero, and give the entire internal pressure corresponding to the temperatures; whereas, our steam-gauges only indicate the difference between the pressure of the atmosphere and the entire internal pressure. This statement is not contradicted or varied, and is the actual fact. To ascertain the entire internal pressure upon the contents of the defendant's boilers, the weight of the atmosphere, averaging $14\frac{7}{8}$ pounds, must be added to the pressure indicated by the steam-gauges.

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The mode of measuring the degree of temperature by pressure or otherwise was no part of Mellier's invention. It was a matter to be learned from the books. Mellier wrote for those skilled in the use of high pressures and steam-gauges, and he took for granted that every one who used his invention would know, as he ought to know, that all ordinary steam-gauges worked against the pressure of the atmosphere. Hence he is very precise in stating that the pressure which he referred to was the pressure within the boiler, not the difference between the internal pressure of the steam and the external pressure of the air. Thus he says, in the passage above quoted: "The heat is to be raised to such a degree as to attain and maintain for a time a pressure internally of the boiler, equal to and exceeding seventy pounds to the square inch," and again, "By means of submitting the straw or similar fibrous materials to a pressure between 70 to 84 pounds to the square inch inside the boiler," etc. He says, also, "a steam-gauge properly fixed upon the boiler will enable one to ascertain when the pressure has attained the required degree." How? Not by anything upon the gauge itself, because that only indicates pounds. The pounds are to be turned into degrees, and that can only be done by reference to the tables then in use. The specification gives but one of the corresponding readings from these tables, 70 pounds equals 310° F. and in precise, unambiguous language, refers to the internal pressure.

This construction has been affirmed by judicial decision in the case of the present complainant *v.* Heft, in the Eastern District of Pennsylvania; see also, opinion of Judge Hall of the Northern District of New York; *Amer. Wood Paper v. Glens Falls Paper Co.*, 8 Blatchf. 513.

Messrs. R. W. Russell and S. D. Law, for Fiber Disintegrating Company:

The original Watt & Burgess American patent of 1854, was invalid, because it was not for the same invention as

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that described in the English provisional specification, filed August 19, 1853, to which date the American patent has relation.

The same objection applies, with even greater force, to the reissued patents of 1863.

An English patent is granted, upon the condition that if the patentee shall not particularly describe and ascertain the nature of the invention, and in what manner the same is to be prepared, by an instrument in writing, under his hand and seal, and cause the same to be filed in the great seal office, within six months after the date of the patent, it is to be void. *O'Reilly v. Morse*, 15 How. 108 [5 Am. & Eng. 483].

The English patent was granted October 27, 1853, and the final specification, filed February 18, 1854, recites the previous granting of the patent, which patent was for the invention described in the petition and provisional specification.

This final specification is not for the invention described in the provisional specification, and the English patent is for that reason, under the decisions in England, void.

Byrne, Patents, 33, London, 1860; *Harmer v. Playne*, 11 East, 101 [1 Am. & Eng. 171]; *Bovill v. Moore*, 2 Marsh. 211 [1 Am. & Eng. 268]; *Brunton v. Hawkes*, 4 B. & Ald. 541 [1 Am. & Eng. 327]; *Campion v. Benyon*, 6 J. B. Moore, 71; [1 Am. & Eng. 345]; *Bloxam v. Elsee*, 6 B. & C. 169 [1 Am. & Eng. 373].

The process described in this final specification is not the process described in the petition and provisional specification.

After going through the farce of copying the provisional specification, the final specification proceeds to describe the invention.

The very first step of the process described in the provisional specification, the use of sulphurous acid, is dropped altogether; and instead of relying upon the action of sulphurous acid, followed by chlorine to bleach and disinte-

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grate the fibers, and then applying a warm and dilute solution of caustic soda or potash to complete the process, the patentees proceed to describe the following process as their invention: 1. The wood shavings, etc., are to be boiled in a solution of caustic alkali of enormous strength. 2. Chlorine is applied. 3. A weak solution of caustic alkali.

It thus appears that between August 19, 1853, and February 18, 1854, Messrs. Watt & Burgess entirely changed their proposed process, but probably not being willing to lose the fees paid on the provisional specification, or desiring to date back their claim of invention to August 19, 1853, to cut out other inventors, they filed the final specification in question. As the invention described in that provisional specification is not the same as that described in the American patent of July 18, 1854, the antedating to August 19, 1853, is fatal to the American patent.

The authority of the Commissioner of Patents to antedate a patent is given by the act of 1839, section 6, which directs the patent to be limited to the term of fourteen years from the date of publication of the foreign letters patent, for the same invention or discovery.

It was a fraud to represent that the English patent was for the same invention as that described in the American specification, and thus to get the benefit of the antedating to August 19, 1853, and of the legal presumption that the invention described in the patent of 1854 was invented as early as August 19, 1853, so as to cut out intervening patents, etc.

Comparing the reissued patents of 1863 with the English specification of August 19, 1853, it is most manifest that they are not for the same invention.

The process described in the first claim of the reissued patent of 1863, is to be applied to every kind of vegetable fibrous substance, except resinous woods, and in that process there is to be no disintegration by sulphurous acid nor by chlorine; on the contrary, the disintegration is to

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be effected by the sole agency of caustic alkali and high pressure boiling.

As to the second claim, respecting a process for resinous woods, it would be immaterial, even if it referred to a process like that of the original specification; the fact would remain that the patent is, as to the part covered by the first claim, a patent for an invention not described in the provisional specification.

The English patent is void because the first specification is for an invention different from that afterwards described.

And the American patent is void because it relates back to the first English specification, and falsely claims to be for the invention therein described.

The reissued Watt & Burgess patents of 1863, are invalid, not being for the same invention as that patented in the original patent of 1854, and being in part for an invention disclaimed by the patentees in the original patent. Plaintiffs are estopped by that disclaimer.

Two patents were issued bearing the same date, one for a process, the other for a product or manufacture.

1. *As to the reissued patents for the process.*

The first claim of this patent totally omits the whole of the process described in the first patent, and claims another invention, viz. :

“The process of treating wood or other vegetable substance by boiling in an alkali under pressure as a process, or preparatory process, for making pulp for the manufacture of paper from such woods or other vegetable substance substantially as described.”

The second claim in the process patent, which is omitted in the product patent, appears to have been inserted for the purpose of keeping up a show of some kind of resemblance to the original patent of 1854. But that second claim relates exclusively to the treatment of resinous woods, while the first claim includes any vegetable substance.

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2. *As to the patent for the product.*

It describes the process by which the product is to be made. It is exactly the same process as that set forth in the process patent.

The claim is for "A pulp suitable for the manufacture of paper made from wood or other vegetable substance, by boiling the wood or other vegetable substance in an alkali under pressure substantially as described."

The theory of the plaintiff's counsel is, that one who obtains a patent for a chemical process may, after trying it and discovering its defects, reissue the patent and make the necessary corrections, deductions and additions, so as to make the patent read for the improved process. Plaintiff's counsel go further, and contend that it is the duty of the patentee to adopt that course, so as to give the public the benefit of his more recent discoveries. We maintain, on the contrary, that it is for the inventor take out a new patent for his newer invention, and that he has no right to reissue the old patent to antedate the new invention, for thereby he would shut out the intermediate inventions, and also avoid the necessity of taking an oath as to believing himself to be the inventor of the new method; he or his assignee has only to swear generally that there is some defect when a reissue is applied for.

The law does not allow the inventor to take the course which the plaintiff's counsel say he ought to take, for the law only authorizes a reissue for the same invention with a more perfect description, or the abandonment of an overclaim.

The Commissioner has no legal power or authority to reissue a patent for an invention different from that of the original patent. This is a jurisdictional question. The validity of the patent depends upon it. The decision of the Commissioner as to the identity of the invention, is no more conclusive than his decision that the patentee is the inventor, or that the assignee has proved his title.

Judge Story appears to have considered that the ques-

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tion was not examinable, "Unless it appear on the face of the patent that he (the Commissioner of Patents) has exceeded his authority," by granting a reissue for an invention not the same as that described in the original patent. *Woodworth v. Stone*, 3 Story, 749.

But Judge Woodbury held that evidence was admissible to show that the original patent did not cover the invention claimed in the reissue. *Allen v. Blunt*, 2 Wood. & M. 121; *Stimpson v. R. R. Co.*, 4 How. 380 [4 Am. & Eng. 398]; *O'Reilly v. Morse*, 15 How. 111 [5 Am. & Eng. 483]; *Brooks v. Fiske*, 15 How. 215 [6 Am. & Eng. 15]; *Burr v. Duryee*, 1 Wall. 531 [7 Am. & Eng. 224].

In the following cases it was held, either that the decision of the Commissioner, on granting a reissue, should be deemed conclusive on the question as to the identity of the invention, or that the reissue might be for an invention actually made by the patentee, although not covered by the original patent.

House v. Young, 3 Fish. 335; *Sherman, J.*; *Hussey v. Bradley*, 2 Fish. 362, *Nelson & Hall, JJ.* (1869); *Whiteley v. Swayne*, 4 Fish. 123, *Leavitt, J.*; *Am. Wood Paper Co. v. Heft*, 3 Fish. 316; and see, *French v. Rogers*, 1 Fish. 133; see, also, *Woodward v. Dinsmore*, 4 Fish. 163.

In the following cases it was considered that the reissue is void when, upon a comparison between it and the original patent, it is seen that they are different inventions.

Cahart v. Austin, 2 Fish. 543; *Poppenhusen v. Falke*, 2 Fish. 181; *Potter v. Holland*, 1 Fish. 382; *Middletown Tool Co. v. Judd*, 3 Fish. 141; *Chicago, etc., Co. v. Busch*, 4 Fish. 395; *Parham v. Am. Buttonhole Co.*, 4 Fish. 468.

In the following cases it was held that the reissue must be confined to the invention covered by the original patent.

Knight v. Balt. & O. R. R., 3 Fish. 1; *Goodyear v. Berry*, 3 Fish. 439.

In the last cited case the court says that, according to the late cases, the decision of the Commissioner is open to examination.

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Hoffheins v. Brandt, 3 Fish. 218; Dyson v. Danforth, 4 Fish. 133; Brown v. Selby, 4 Fish. 363; Seymour v. Osborne, 3 Fish. 555.

In the last cited case the court states that the more recent decisions hold that the propriety and legality of the reissue are examinable.

In Eureka Co. v. Bailey Co., 11 Wall. 488 [8 Am. & Eng. 280], it was held that "It may be shown, in a suit on a reissued patent, that it covers matter not part of the original invention."

The invention patented on a reissue must be shown or suggested in the original specification.

Sarven v. Hall, 9 Blatchf. 524.

The issue of two patents in lieu of one was not authorized, as they are not for distinct and separate parts of the thing patented.

The process and product together constitute but one invention, of which there are no distinct and separate parts.

See, Vance v. Campbell, 1 Black. 427 [7 Am. & Eng. 117]; Woodworth v. Hall, 1 Wood. & M. 248.

The reissued patents are too broad, there being at all events no novelty in boiling some vegetable substances in a solution of caustic alkali under a pressure at or near 300° F., for the manufacture of paper pulp therefrom.

If the novelty consists in the use of a single stage chemical process, then the plaintiff's case fails, as the defendant does not use that process but a totally different one, viz.: a compound process, whereby the woody matter is reduced to pulp before the final alkali treatment.

The Boiler Patents.

Keen's boiler patent of 1859 is for a combination of stirrers, of a particular form, with an ordinary expansion chamber and discharge valve.

Keen's Boiler Patent of 1863.

The claims in this patent are as follows:

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1. "A boiler provided with a perforated diaphragm and well, or their substantial equivalents, arranged in the manner and for the purpose described.

I also claim, in combination with the boiler, the arrangement of the discharge pipe and valve for the purpose of drawing out or discharging the contents of the boiler under pressure substantially as and for the purpose set forth.

The patent declares the invention to be as follows: "My invention consists in connecting the man or feed-hole in the shell of the boiler with the man or feed-hole through the diaphragm by a preforated well or cylinder, so that the material can be charged through said well into the boiler, without falling upon or clogging the perforated diaphragm."

Defendants do not use the contrivance but charge the boiler through a man-hole below the diaphragm.

Each of the two boiler patents is for a combination of old contrivances.

And there is no pretense for saying that the defendants use all the elements of either of those combinations.

There is no infringement of a patent for a mere combination, unless all the elements of the combination are used.

Prouty v. Ruggles, 16 Pet. 336 [4 Am. & Eng. 351]; *Carver v. Hyde*, 16 Pet. 513 [4 Am. & Eng. 367]; *Stimpson v. R. R. Co.*, 10 How. 345 [5 Am. & Eng. 129]; *Byam v. Eddy*, 2 Blatchf. 521; *Rich v. Close*, 8 Blatchf. 41; *Eames v. Godfrey*, 1 Wall. 78 [7 Am. & Eng. 158].

The Mellier Patent.

Mellier was not the first to discover the utility of the use of a steam pressure as high as seventy pounds in boiling fibrous materials in a solution of caustic alkali, for the manufacture of paper pulp; and even if he had been, he could not take a patent for that use alone, as prior patents call for the use of such high pressure boiling without limit.

The complainants are estopped by the allegation in their bill that Watt & Burgess preceded Mellier.

Opinion of the court.

Mr. Justice STRONG delivered the opinion of the court :

Though the two reissued patents (a) were granted on the same day and to the same patentees, and though they are both substitutes for the one original patent granted July 18, 1854, antedated August 19, 1853, they are to be carefully distinguished one from the other. The first (No. 1,448) is a patent for a product or a manufacture, and not for any process by which the product may be obtained. The second (1,449) is for a process and not for its product. It is quite obvious that a manufacture, or a product of a process, may be no novelty, while, at the same time, the process or agency by which it is produced may be both new and useful—a great improvement on any previously known process and, therefore, patentable as such. And it is equally clear, in cases of chemical inventions, that when, as in the present case, the manufacture claimed as novel is not a new composition of matter, but an extract obtained by the decomposition or disintegration of material substances, it cannot be of importance from what it has been extracted.

There are many things well known and valuable in medicine or in the arts which may be extracted from divers substances. But the extract is the same, no matter from what it has been taken. A process to obtain it from a subject from which it has never been taken may be the creature of invention, but the thing itself, when obtained, cannot be called a new manufacture. It may have been in existence and in common use before the new means of obtaining it was invented, and possibly before it was known that it could be extracted from the subject to which the new process is applied. Thus, if one should discover a mode or contrive a process by which prussic acid could be obtained from a subject in which it is not now known to exist, he might have a patent for his process, but not for prussic acid. If, then, the Watt & Burgess patent for a

23 Wall. 593-594.

(a) Wallace inserts (Nos. 1,448 and 1,449)

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product is sustainable it must be because the product claimed, namely : "a pulp suitable for the manufacture of paper, made from wood or other vegetable substances," was unknown prior to their alleged invention. But we think it is shown satisfactorily that it had been produced and used in the manufacture of paper long before 1853, the year in which the original patent of Watt & Burgess was dated.

(b) The pulp out of which paper is made, whether obtained from wood or other vegetable substances, is a fibrous material, consisting of what is called in chemistry "cellulose." As such, in its natural state, it is combined with other substances called intercellular matter, which must be removed to render the cellulose fit for being made into paper. It was well known before 1853 that the fibers of cotton or of flax were pure cellulose, and that cellulose existed also in straw or wood, but that it had not, so far as is known, been extracted from wood by chemical agencies alone, nor brought into a condition to be wrought into paper without mechanical treatment. Even the fibers of cotton and of flax, though pure cellulose, required disintegration in order to reduce them to a pulp suited to felt in paper. This was usually effected by mechanical means, by a rag beating machine; but when thus effected, a product had been obtained adapted to the manufacture of paper, a fibrous pulp; the same in kind, and capable of the same uses, as that obtained from straw or wood.

So a pulp had been produced from straw and some varieties of wood by various processes, many of them doubtless cumbrous, and all of them perhaps much inferior to the process of Watt & Burgess. This is shown by the patents given in evidence, and it has been admitted during the argument. (c).

It is insisted, however, that the paper pulp which had been produced before the invention of Watt & Burgess was not pure cellulose, that it was only approximately

23 Wall. 594.

(b) Wallace omits from (b-c).

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pure, and from this it is argued that the pure article obtained from wood by their process is a different and new product or manufacture. Whether a slight difference in the degree of purity of an article produced by several processes justifies denominating the products different manufactures, so that different patents may be obtained for each, may well be doubted, and it is not necessary to decide. The product of the complainant's patent is a pulp suitable for the manufacture of paper and, confessedly, to make white paper it requires bleaching. The pulp which had been obtained by others from rags in large quantities, and from straw, wood and other vegetable substances to a lesser extent, was undeniably also cellulose, suitable for manufacturing paper and, so far as appears, equally suitable. The substance of the products, therefore, was the same, and so were their uses. The design and the end of their production was the same, no matter how or from what they were produced.

It is freely admitted that the patent of an originator of a complete and successful invention cannot be avoided by proof of any number of incomplete and imperfect experiments made by others at an earlier date. This is true, though the experimenters may have had the idea of the invention, and may have made partially successful efforts to embody it in a practical form. And though this doctrine has been more frequently asserted when patents for machines have been under consideration, we see no reason why it should not be applied in cases arising upon patents for chemical products. But the doctrine has no applicability to the present case. What had been done before the Watt & Burgess invention was more than partially successful experimenting. A product or a manufacture had been obtained and had been used in the arts, a manufacture which was the same in kind and in substance, and fitted for the same uses as the article of which the complainants now claim a monopoly. That this manufacture may have been

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the product of one or more different processes is, as we have said, quite immaterial in considering the question whether it is the same as that produced by the complainants.

It has been, however, argued that the product of the complainants' process and the product claimed as a new manufacture is cellulose, of the proper consistency and dimensions, and with a fiber of a proper length for immediate felting into paper, while the cellulose obtained from rags or wool, or other vegetable substances, by other processes than that of the Watt & Burgess patent, had a longer fiber, and required, in addition to chemical agency, mechanical treatment to prepare it for use in paper making. Hence, it is inferred the product is a different one, that it is properly denominated a new manufacture, and that it was patentable as such.

This argument rests upon a comparison of the finished product of the complainants with an article in an intermediate stage, and while undergoing treatment preparatory to its completion. It may be quite true that at some stage of its preparation the paper pulp made and used before 1853 was not of the proper consistency for paper making, or that its fiber was too long, and that it required additional manipulation to fit it for use. But when it had received that treatment, its fibers were reduced to the proper length, and it became capable of all the uses to which it is claimed the product of the complainants is adapted. It is with the finished article that the comparison must be made and, being thus made, we are of opinion that no substantial difference is discoverable.

It may be that if the cellulose which had been produced prior to 1853, of such form and with such properties that it could be at once felted into paper, had been only a chemical preparation in the laboratory or museum of scientific men, and had not been introduced to the public, the Watt & Burgess product might have been patented as a new

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manufacture. Such appears to be the doctrine asserted in some English cases, and particularly in *Young v. Fernie*, 10 Law Times Rep. (N. S.) 861. In that case Vice-Chancellor Stuart remarked upon a distinction between the discoveries of a merely scientific chemist, and of a practical manufacturer who invents the means of producing in abundance, suitable for economical and commercial purposes, that which previously existed as a beautiful item in the cabinets of men of science. "What the law looks to," said he, "is the inventor and discoverer who finds out and introduces a manufacture which supplies the market for useful and economical purposes with an article which was previously little more than the ornament of a museum." But this is no such case. Paper pulp obtained from various vegetable substances was in common use before the original patent was granted to Watt & Burgess, and whatever may be said of their process for obtaining it, the product was in no sense new. The reissued patent, No. 1,448, is, therefore, void for want of novelty in the manufacture patented.

The reissue, 1,449, is for a process to obtain pulp from wood or other vegetable substances for the manufacture of paper. It consists in boiling the wood under pressure in a solution of caustic alkali, with such an adjustment of the strength of the solution, of the pressure, and of the time of boiling as to produce the pulp ready for washing and bleaching at a single operation. It is in the main, if not entirely, a chemical process, and it differs from all processes for obtaining paper pulp known before 1853, when the original patent to Watt & Burgess was dated, in this particular: that it produces the pulp ready for bleaching or for use in a single operation. In all processes prior to that date, successive operations were necessary in order to obtain a pulp fitted for use in making paper. These were in part mechanical, sometimes wholly so. In some cases the vegetable substances had been boiled in alkalies in

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open or closed boilers; under pressure, or without pressure. To this treatment, disintegration by mechanical means was added, and in no case had a suitable pulp been produced by chemical agency and in a single stage of treatment. It must then be admitted that the process described in this reissue was unknown before 1853, and if then invented by Watt & Burgess, it was patentable to them. Whether it was in fact patented to them is another question. It is, we think, fairly established by the testimony of Hugh Burgess, one of the original patentees, that in 1851 or 1852 he produced a good pulp by boiling wood in a caustic alkali at a high pressure. The witness does not, however, state that this production was the result of a single process. His description of his experiments (*d*) is very significant. (*e*) It is as follows: I found that some wood required much more alkali than others. I found that when intercellular matter was not wholly removed by caustic alkali, it could be decomposed by chlorine, or the hypochlorides; one answering the purpose as well as the other. I used, therefore, chlorine or bleaching powder, preferably chlorine, since one of the products attending the elimination of chlorine, namely; sulphate of soda, had a marketable value in England. I found that to a certain extent, and when desirable, I could substitute caustic alkali for chlorine, the one for the other; but the nature of the wood under treatment materially affected this substitution. I found the greater the quantity of intercellular tissue removed by the caustic alkali, the less chlorine or its compounds with oxygen was required, and consequently, the higher the temperature and pressure; and the greater the strength of the alkali employed, the less of the intercellular tissue was left and, consequently, less chlorine or its compounds with oxygen required. But if sufficient caustic alkali was employed at a requisite temperature, chlorine was only necessary for

23 Wall. 597.

(*d*) Wallace inserts "as given in his testimony."

(*e*) Wallace omits from (*e-f*) and substitutes, "What he there swears to."

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bleaching purposes. As regards the cost, the chlorine process appeared to cost less than the free use of alkali, since one of the products of its elimination is a marketable article in England, and we calculated on the sale of the sulphate of soda as one of the sources of profit in working the patent. In drawing up the specification for a patent, I, therefore, laid most stress on the process that seemed to offer the greatest pecuniary advantage, since the recovery of the soda-ash had not been practically tried by us at this time, and we were in uncertainty as to the success of such recovery. With the knowledge of the above facts, I was desirous of embracing in my specification the modes of producing wood pulps with caustic alkali, either with or without steam pressure, supplementing, when necessary, the alkaline boiling, with the subsequent treatment of chlorine or the hypochlorides."

This (*f*) does not look at all like the production of pulp by a single operation, nor does it intimate any discovery of a process by which it could be effected. Such an idea seems not then to have been in the mind of the inventor. And when the schedule to the English patent, dated August, 1853, was prepared, it described a process, consisting of several stages. In that wood shavings were first boiled in caustic alkali of the strength indicated by about twelve of the English hydrometer. This process, the specification stated, was much better performed under pressure, and after the wood had been boiled about twenty-four hours it was to be well washed and squeezed to remove the alkali. The wood was then placed upon racks in a chamber and exposed to the action of chlorine, or any of the compounds of chlorine with oxygen. When sufficiently acted upon by the chlorine it was to be removed and washed, and then subjected to the action of a weak solution of caustic alkali. Only then, after these successive stages, was a pulp produced ready for bleaching. The specification of this patent is the same as that of the first American patent, granted

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July 18, 1854, but antedated August 19, 1853, to correspond with the English one. If it contains the germ of the process described and claimed in the reissue, 1,449, it is too evident to admit of doubt there was then in the mind of the patentees no finished conception of such a process. What they contemplated was a series of manipulations. Boiling under pressure, though preferred, was not stated to be essential. No graduation of the strength of the alkali was described. No degree of pressure was named, and no variation of the time of treatment. These are all-important to the production of pulp in one operation.

Undeniably, three successive stages of operation were described in the specification, three distinct processes, not employed contemporaneously, but following each other in order of time. And this succession in the order mentioned was considered by the patentees as essential; in fact it was claimed as their invention. In support of their application for the original American patent it was argued on their behalf that "their invention relates to a series or combination of processes, in the order in which they are stated, for treating shavings, etc." The several processes and their order was then stated (*g*) thus:

1. Boiling in a caustic alkali solution until they have, by the test of washing, lost their woody taste. 2. Then, after they have been washed, subjecting them to the action of chlorine or its compounds, and oxygen. 3. Then, after another washing, subjecting them to a weak solution of caustic alkali. "The shavings," it was argued, "must pass through these several processes, and in the order stated; and this constitutes the invention." We quote further from the argument, as follows: "The processes taken separately will not produce the article, but their sum will;

23 Wall. 598.

(*g*) Wallace omits from *g-h* and substitutes "An 'order and series of processes' is what, according to the statement made in support of their application, constituted their invention, and what they supposed they had embodied in their claim."

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and they are only claimed in their series, and not in their individual capacities. It is admitted that alkali and chlorine have been used in pulping vegetable matter, but it is not known that alkaline, chlorine, oxygen and alkali have been used in the manner and in the order in which Messrs. Watt & Burgess use them. This order and series of processes is what, therefore, constitutes their invention, and what they suppose they have embodied in their claim (*h*).

And the claim of the patent was for the treatment of wood shavings by chemical agencies "*in the order substantially as described.*" How, then, is it possible to maintain that a process to obtain pulp by chemical action in a single operation had been invented by the patentees when their first patent was granted? And what is of more importance, how is it possible to hold that such an invention was patented to them? We find no satisfactory evidence that the idea of a single stage process was ever conceived by Watt & Burgess until after a patent disclosing it was granted to Marie Amedée Charles Mellier on the 26th day of May, 1867. This was before the surrender of their original patent, and before the reissue. And if Watt & Burgess had not invented the single stage process when their original patent was granted, the reissue, 1,449, is for a different invention from that described or referred to in the original patent; and such is the testimony of the experts who have been examined in this case. But the testimony of the experts is not needed. It appears on the face of the reissue that it is for a different invention for the reissue is attempted to be sustained only on the ground that it is for a single stage process. Both the reissues, therefore, we think, are void.

We proceed next to consider the two boiler patents granted to Morris L. Keene. The first of these (*i*) is for a boiler for boiling under pressure wood and ligneous ma-

23 Wall. 598-599.

(*i*) Wallace inserts "dated September 18, 1859."

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materials for making paper pulp, constructed with an expansion chamber, stirrers and discharge valve or cock, arranged for the purpose and in the manner substantially as stated in the specification. Such was the claim of the patentee. The invention claimed is, therefore, a combination, in a specified manner, of an expansion chamber, stirrers of a peculiar construction, and a discharge valve in a boiler, and the purposes avowed are to keep the stock boiled covered with the liquid used, to give it motion in order to insure its being properly boiled throughout, and to blow it out in a pulpy state when it has been sufficiently boiled. In the arrangement of the constituents of the combination for the accomplishment of these purposes, the expansion chamber is provided with an aperture through which the boiler is charged. The stirrers are two in number, the shafts of which are placed vertically toward the sides of the boilers, and provided with arms on one side only, in order that they may be turned toward the periphery of the boiler when it is to be charged, so as not to be in the way of the material thrown in. That the stirrers constructed and arranged substantially as described were a material part of the combination is certain, and we think it has not been proved that they were used by the defendants. It is true that the extent of the use, if there was any, is immaterial. A single instance of using the combination would have amounted to infringement, and would have entitled the complainants to a decree. But the defendants never employed two stirrers, nor even one constructed with arms only on one side, capable of being turned outward when the boiler was charged, so as not to be in the way of the charge or an impediment to the discharge. The novelty in the arrangement, so far as it relates to the stirrers, is in their construction and location, with a view to remedy this difficulty. There is evidence that the defendants did for a time use an ordinary stirrer, a single shaft in the center of the boiler, provided with four blades, in form like the

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blades of a propeller. Arranged, as it was, directly under the expansion chamber, and under the supply aperture, it was, of course, an obstruction to the material with which the boiler was charged, and to the discharge of the pulp, and hence its use was abandoned either before or soon after this bill was filed. Regarding, as we must, the Keene patent as being for a combination of the devices mentioned, constructed and arranged as described in the specification, and for the purposes avowed, we think it must be held that the device employed by the defendants cannot be considered substantially the same as the peculiarly constructed and located stirrers of the patent. We think it evident that the novelty and usefulness of the Keene combination, so far as it relates to the stirrers, is in their construction and location, so as to avoid the obstruction to filling and discharging the boiler, which was caused by the use of such an agitator as the defendants employed. We cannot, therefore, hold that this patent has been infringed by the defendants. They have not used all the constituents of the combination, nor employed any equivalent device which produces, or is calculated to produce, the same effects. It is true a witness for the complainants, not a mechanical expert, has testified that the boilers used in the factory of the defendants are substantially the same as those described and patented by Keene, and are operated and treated substantially in the same way. This was, no doubt, the opinion of the witness, but he has stated no facts that justify such an opinion. He has not undertaken to say that the central propeller of the defendants is substantially the same in operation or effect as the stirrers of the Keene patent. And all the mechanical experts who have been examined are of opinion that the defendants' boiler does not infringe either of the Keene boiler patents.

We are also of opinion that there has been no encroachment upon the second boiler patent, dated June 16, 1863. In that there are two claims. The first is "a boiler pro-

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vided with a perforated diaphragm and well, or their substantial equivalents, arranged in the manner and for the purpose described" (in the specification). The second is, "in combination with the boiler, the arrangement of the discharge pipe and valve, for the purpose of blowing out or discharging the contents of the boiler under pressure, substantially as and for the purpose set forth" (in the specification). The invention relates to boilers in the interior of which a perforated diaphragm is placed, and through which diaphragm the material for paper pulp manufacture is to be charged into the cylinder. Its design is to prevent the falling of the material upon the diaphragm and choking its openings, and the means devised for achieving this are connecting the feed-hole in the shell of the boiler with a man or feed-hole through the diaphragm by a perforated well, or cylinder, so that the material can be charged through the well into the boiler without falling upon or clogging the diaphragm. As the defendants have not used a perforated well connecting a feed-hole in the shell with a man-hole in the diaphragm of the boiler, they are certainly guilty of no infringement of the first claim in this patent. They feed their boiler by means of a feed-hole below the diaphragm, not through it. Surely this is not a substantial equivalent for a cylindrical well from the top of the boiler through the diaphragm. Surely the patent was not intended to be for every possible means of supplying the boiler without clogging the interstices or perforations of the diaphragm. Had it been it would be void. But it is not for a result however obtained, it is for a mode of attaining a useful result. In such a case as this it cannot be maintained that because the result is the same the devices for obtaining it are not substantially different.

It is argued, however, that the defendants have infringed upon the second claim of the patent, and they undoubtedly have if the mode of charging the boiler, and the devices by which the charging is accomplished, have no relation to

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the asserted invention. If it be true that the second claim means nothing more than the assertion of an exclusive right to discharge any boiler in the mode described in the specification, very clearly the defendants are trespassers. But is that the true construction of the claim? We think not. It is not the arrangement of the discharge pipe and valve that the patentee claims, but it is those devices in combination with the boiler particularly described in the specification, namely: a boiler containing, near its upper end, a perforated diaphragm, with an opening in its center, and having a well connecting that opening with the feed-hole in the shell of the boiler. It may be quite true that the well and the mode of charging the boiler have no effect upon the mode of discharge, yet the claim is for a combination, of which the well is a part. Its language admits of no other construction. Hence the defendants, not having used the well, they have not used the combination.

These considerations lead to the conclusion that the appeal of the American Wood Paper Company cannot be sustained.

It remains to inquire whether the Mellier patent is a valid one, and whether the defendants have been guilty of infringing it. Both these inquiries the Circuit Court answered in the affirmative and, consequently, awarded an injunction against the defendants. It is from this part of the decree they have appealed.

The difficulty of this part of the case lies in determining what was the invention of Mellier—the invention patented. The second claim of the patent (which is the only one asserted to have been infringed) is, to say the least of it, obscure. It is avowedly for a process, and a process described in the preceding specification. But what that process is which the patent describes, wherein consists its novelty and usefulness, it is not easy to define. And it is not surprising that though no less than three Circuit Courts have been called upon to construe the patent, a construction somewhat different has been given in each case.

Opinion of the court.

In the court below, the principle of the Mellier discovery was held to be this, namely: that the effect of a solution of pure caustic soda upon straw and such other fibrous materials could be increased by the use of it under pressure, at a temperature of not less than about 310° Fahrenheit, so as to result in the production of the nearly pure fiber without resort to any other chemical process, thereby saving both alkali and time. In the Circuit Court of Pennsylvania the discovery was, by one of the judges, understood to be that the temperature and strength of the caustic alkali solution and the duration of the boiling could in practice be so graduated and adjusted as to produce the pulp at one operation. This construction of the specification was, in effect, holding the invention to be substantially the same as that in the Watt & Burgess reissue, No. 1,449, already considered.

But in *Buchanan v. Howland*, 2 Fish. 341, when the same patent was presented for construction in the Northern District of New York, the principle of the discovery was held to be that the known effects of a solution of pure caustic soda, which had been previously used for boiling straw and other fibrous materials of a similar character and texture, in open vessels, in which the heat could be raised only to 212° Fahrenheit, might, by the use of a much higher degree of heat, not less than 310°, be advantageously and greatly increased, while at the same time the reduction of the materials to paper pulp would be more economical, inasmuch as it dispensed with the large quantities of alkali which had been previously employed. This resembles the construction adopted in the court below, though not exactly the same. And such, we think, is the true construction of the specification, and the process described is, we think, an attempted embodiment of this principle. Undoubtedly, the patentee in framing his process made use of known agents. The use of caustic alkali in reducing vegetable substances to paper pulp was no novelty. Neither

Opinion of the court.

was boiling under pressure. But a process combining those things with a certain specified arrangement of the strength and quality of the alkaline solution, and a defined regulation of the heat and pressure, may well have been patentable if it had no other novel result than the production of paper pulp more economically. In the specification the improvement claimed is declared to consist "In subjecting straw or other fibrous materials to a pressure of at least seventy pounds on the square inch when boiling such fibrous matters in a solution of caustic alkali." Then follows a description of the mode in which the improvement is effected, in which not only is the minimum of pressure or heat described, but the strength of caustic alkali used is approximately defined. The heat is specified by stating it as equivalent to at least seventy pounds on the square inch, internal pressure, on the boiler, and the strength of the alkali used is described as from two to three degrees of Baumé, or of a specific gravity of from 1.013 to 1.020. These are to be used together in a boiler where a steam-gauge will render it possible to ascertain when the pressure has attained the required degree. A certain strength of alkaline solution, and a degree of heat, indicated by a minimum pressure, are essential elements in the process. The precise proportion of alkali used is not specified, but it is described as about sixteen per cent., that is, sixteen pounds to one hundred of the fibrous substance under process. The heat is described as that which is equivalent to at least seventy pounds internal pressure on the boiler, or, as the patentee says, equivalent to 310° Fahrenheit. Quite evidently by using the phrase "internal pressure," the patentee intended artificial pressure alone, that produced by the application of heat, and the measure of the heat. If so, the pressure, as measured by the steam-gauge, instead of being seventy pounds, is the weight of one atmosphere ($14\frac{7}{16}$) less, or $55\frac{3}{16}$ pounds. This was the opinion of the court below, and in that opinion we concur. That the pat-

Opinion of the court.

entee so understood it, is manifest from the fact that he defined seventy pounds internal pressure on the boiler as being equal to about 310° of Fahrenheit. It is much more than equal to that temperature if the pressure is marked by the steam-gauge, unless the weight of the atmosphere be deducted. But if from it be deducted the weight of one atmosphere, the remainder ($55\frac{3}{8}$) approximately corresponds with the temperature named. Sixty pounds pressure exceeds 310° Fahrenheit, even with distilled water, and still more with an alkaline solution. It is, then, altogether probable the French tables of steam pressures, recognized throughout the scientific world, were in the patentee's mind. They start from a vacuum at zero, and make ordinary atmospheric pressure $14\frac{7}{8}$ pounds; whereas, safety valves and manometer gauges in this country are always graduated so as to express the pressure in pounds, exclusive of that of the atmosphere. Mellier was a Frenchman and probably familiar with the French tables.

Understanding the terms used in the specification thus, the elements of the process claimed are, 1, the use of a solution of pure caustic soda (sodium and oxygen), from two to three degrees Baumé strong; and, 2, boiling the materials to which the process is applied in the solution raised to a temperature of not less than 310° Fahrenheit, which, of course, implies the use of a close boiler. The preparation of the materials for the process is no part of it, nor is the subsequent washing and bleaching.

The claim, it is true, in referring to the material to be treated, mentions only straw, but the object of the claim was to secure a monopoly of the process, not to enumerate the materials to which it might be applied. They had already been described in the specification, and there was no necessity for mentioning any of them in the claim. It is true the patent cannot be extended beyond the claim. That bounds the patentee's right. But the claim in this case covers the whole process invented, and the complain-

Opinion of the court.

ants seek no enlargement of the process. Certainly, the claim of the process ought not to be regarded as excluding all other substances than the one mentioned. As already noticed, the specification avows the object of the invention to be a process for treating straw *and other vegetable fibrous materials requiring like treatment, preparatory to the use of such fibers in the manufacture of paper.* The subject to be treated is fibrous materials of a vegetable nature. And it may well be doubted, in view of this general declaration of the object, whether there is anything that limits the scope of the invention to a process of treating straw and other like materials. The language of the patent is not "straw and other like vegetable materials." The specification speaks of "straw or such other fibrous matters," of "straw or fibrous matters," of "straw or fibrous substance," "straw or other fibrous material," and it uses other similar forms of expression, but all of them clearly referring to fibrous materials requiring treatment like that required by straw for the production of paper pulp. It would, therefore, in our opinion, be too narrow a construction of the patent to hold that it is for a process applicable only to straw or other similar vegetable substances and not applicable to vegetable substances generally requiring like treatment for the uses mentioned.

It remains only to inquire whether the defendants have infringed upon the complainants' rights as thus defined, for no sufficient reason has been given to justify our holding the patent void. This part of the case presents real difficulty. If there has been any infringement it was very slight. Admitting that bamboo, which is the subject principally used by the defendants (though there is some evidence that straw was also used), is one of the vegetable fibrous materials to which the complainants have an exclusive right to apply their process, does the evidence show that the process has been applied? Certainly it has not, unless, in boiling bamboo or straw, the minimum degree of

Notes and Citations.

heat and pressure specified in the patent has been employed by the defendants in their treatment of vegetable substances. The evidence upon this subject is, that while using an alkaline solution of less than $3\frac{1}{2}$ degrees Baumé the defendants have sometimes used an external pressure, as measured by the gauge, of from forty to sixty pounds, the latter being equivalent to an internal pressure of nearly seventy-five pounds, or a temperature above 310 degrees. This may have been, and it probably was, only occasionally, but it was, nevertheless, an invasion of the monopoly. In regard to the strength of the solution of caustic alkali employed, there is evidence that the general strength was from two and a half to three degrees Baumé.

Upon the whole, therefore, we have come to the same conclusions as those reached by the court below.

(j) The decree of the Circuit Court is affirmed, and each party is ordered to pay their own costs in this court. (k)

23 Wall. 607.

(j) Wallace substitutes for from *(j-k)* "Decree affirmed: each party to pay his own costs in this court."

Notes:

3. An old product produced by a new process is not patentable:
 Cochrane v. Badische Anilin and Soda Fabrik, 111 U. S. 293 ;
 and see
 Western Electric Mfg. Co. v. Ansonia Brass Co., 114 U. S. 447.
 Plummer v. Sargent, 120 U. S. 442.
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6. Reissues void for want of identity with original: See
 Collar Co. v. Van Deusen, 23 Wall. 530, note 4 [p. 156 ante].
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Notes and Citations.

Patents in Suit :

No. 11,343. Watt & Burgess. July 18, 1854. Paper Pulp Manufacture, *a*.^{*} Reissue No. 1,448. April 7, 1863. Product, *b*. Reissue No. 1,449. April 7, 1863. Process, *c*.

No. 25,418. M. L. Keen. September 13, 1859. Boiler for Making Pulp from Wood, *d*.

No. 38,901. M. L. Keen. June 16, 1863. Boiler for Making Paper Pulp, *e*.

No. 17,387. M. A. C. Mellier. May 26, 1857. Paper Pulp Process, *f*.

OTHER SUITS ON SAME PATENT :

Buchanan *v.* Howland, 1863. 5 Blatch. 151 ; 2 Fish. 341, *f*.^{*}

American Wood Paper Co. *v.* Heft, 1867. 3 Fish. 316, *a*, *b*, *c*, *f*.

American Wood Paper Co. *v.* Fiber Disintegrating Co., 1868. 3 Fish. 362 ; 6 Blatch. 27, *a*, *b*, *c*, *f*.

American Wood Paper Co. *v.* Heft, 1869. 8 Wall. 333 [8 Am. & Eng. 100], *a*, *b*, *c*, *f*.

American Wood Paper Co. *v.* Glens Falls Paper Co., 1871. 8 Blatch. 518 ; 4 Fish. 561, *a*, *b*, *c*, *f*.

Anthony *v.* Carroll, 1875. 2 Ban. & Ard. 195 ; 9 O. G. 199, *f*.

Cited :**IN SUPREME COURT IN:**

Giant Powder Co. *v.* California Powder Works, 1878. 98 U. S. 126; Bk. 25 L. ed. 77.

Hopkins & Dickinson Mnfg. Co. *v.* Corbin, 1881. 103 U. S. 786; Bk. 26 L. ed. 610.

^{*} The letter following the patent is repeated after the title of the case to indicate that the suit was on that particular patent.

Notes and Citations.

Wing *v.* Anthony, 1882. 106 U. S. 142; Bk. 27 L. ed. 110.
Moffit *v.* Rogers, 1882. 106 U. S. 423; Bk. 27 L. ed. 76.
McMurray *v.* Mallory, 1884. 111 U. S. 97; Bk. 28 L. ed. 365.
Cochrane *v.* Badische Anilin and Soda Fabrik, 1884. 111 U. S.
293; Bk. 28 L. ed. 433.
Mahn *v.* Harwood, 1884. 112 U. S. 354; Bk. 28 L. ed. 665.
Torrent & Arms Lumber Co. *v.* Rodgers, 1884. 112 U. S. 659;
Bk. 28 L. ed. 842.

IN CIRCUIT COURTS IN :

Badische Anilin and Soda Fabrik *v.* Cochrane, April, 1879. 16
Blatch. 155; 4 Ban. & Ard. 215.
McKloskey *v.* Du Bois, April, 1881. 19 Blatch. 208; 8 Fed. Rep.
710; 19 O. G. 1286; 20 O. G. 371.
Wooster *v.* Handy, July, 1884. 22 Blatch. 307; 21 Fed. Rep. 51;
28 O. G. 629.
Cottle *v.* Krementz, May, 1887. 31 Fed. Rep. 42.

[illegible]

Syllabus.

JAMES BROWN ET AL., APPELLANTS, v. ENOCH PIPER.*

91 (1 Otto) U. S. 37-44. Oct. Term, 1875.

[Bk. 23, L. ed. 200 ; 10 O. G 417.]

Reversing Piper v. Brown, 1 Holmes, 20.

Argued October 19, 1875. Decided November 1, 1875.

Particular patent construed. Novelty. Invention. Process. Double use. Evidence. State of the art. Notice. Judicial Notice.

1. The claim of letters patent No. 31,736 (old number 732), E. Piper, March 19, 1861, Preserving Fish, for "preserving fish or other articles in a close chamber by means of a freezing mixture, having no contact with the atmosphere of the preserving chamber, substantially as set forth." When taken in connection with the explanations contained in the specification, *construed* to be for the application to articles to be preserved of the degree of cold necessary to preserve them, by means of a "close chamber" in which they are to be placed, and a "freezing-mixture, having no communication with the atmosphere of the preserving-chamber."

Such claim is infringed by anyone who produces this result by the means designated, in any way substantially the same as by that described, having the feature of the non-contact of the freezing mixture with the air of the preserving chamber, *held* to be for the application of an old process to a new subject not involving invention and is anticipated by the patent No. 12,058 granted to John Good, December 12, 1854, for a Corpse-Preserver. (p. 287.)

2. The application of an old process to a new subject without any exercise of the inventive faculty, and without the development of any idea which can be deemed new or original in the sense of the patent law, is not patentable. (p. 291.)
3. Evidence of the state of the art is admissible in actions at law under the general issue without special notice, and in equity

*See Explanation of Notes, page III.

Statement of the case.

cases without any averment in the answer touching the subject. (p. 291.)

4. Courts will take notice of whatever is generally known within the limits of their jurisdiction. This extends to such matters of science as are involved in cases brought before the court. (p. 292.)

[Citations in opinion of the Court:]

Ames v. Howard, 1 Sumn. 482. p. 291.
Howe v. Abbott, 2 Story, 190. p. 291.
Bean v. Smallwood, 2 Story, 408. p. 291.
Winans v. R. R. Co., 2 Story, 412. p. 291.
Hotchkiss v. Greenwood, 11 How. 248 [5 Am. & Eng. 240]. p. 291.
Gres. Eq. Ev. 294. p. 292.
Taylor Ev. sec. 4 n. 2. p. 292.
Ohio L. & T. Co. v. Debolt, 16 How. 416. p. 292.
Hoare v. Silverlock, 12 Ad. & Ell. (N. S.) 624. p. 292.
Glue Co. v. Upton, 6 Off. Gaz. 837. p. 293.
Needham v. Washburn, 7 Off. Gaz. 649. p. 293.
Am. Encyclopedia, vol. 1, Tit. "Antiseptic," 570. p. 294.
Am. Encyclopedia, vol. 7, Tit. "Freezing," 474. p. 294.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

This was an action brought in the court below by the appellee, Piper, for the alleged infringement of two letters patent. Judgment was entered on the report of a master in favor of the complainant, and the defendants appealed to this court.

The specifications and drawings referred to in the opinion are as follows:

ENOCH PIPER, OF CAMDEN, MAINE.

IMPROVEMENT IN METHODS OF PRESERVING FISH.

Specification forming part of Letters Patent No. 31,736, dated
March 19, 1861.

To all whom it may concern:

Be it known that I, Enoch Piper, of Camden, in the

Statement of the case.

county of Waldo, and State of Maine, have invented a new and Improved Method of Preserving Fish and Meats ; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The nature of my invention consists in a method of preserving fish and other articles by placing them within a chamber and cooling the latter by means of a freezing mixture so applied that no communication shall exist between the interior of the preserving chamber and that of the vessels in which the freezing mixture is placed.

The most important application which I propose to make of my invention is for preserving salmon, which are only taken in large quantities in high northern latitudes in summer, so remote from our large cities that they can be made available in a fresh state only by artificial congelation.

Hitherto the only method in use for preserving this kind of fish in a fresh state has been to pack them with crushed ice in barrels or boxes. This method, however, owing to the melting of the ice and the consequent moistening of the fish, fails to preserve them fresh and good for more than a month at most, whereas by my new method and treatment they can be kept as fresh and sweet as when first caught, and for any desirable length of time, even for years.

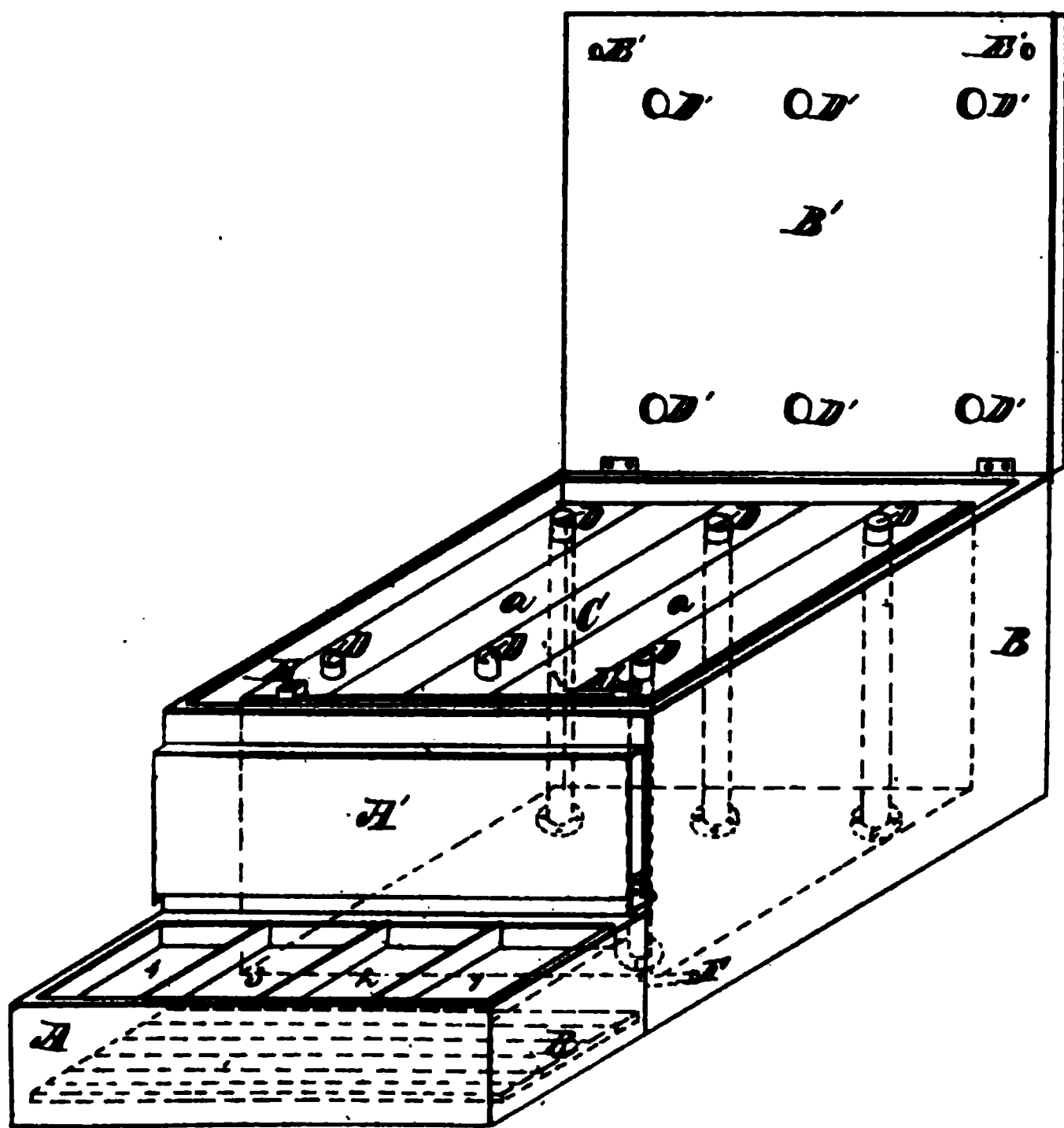
I do not profess to have invented the means of producing artificial congelation, nor to have discovered the fact that no decay takes place in animal substances so long as they are kept a few degrees below the freezing-point of water ; but the practical application of these to the art of preserving fish and meats, as above described, is a new and very valuable improvement.

The apparatus for freezing the fish and keeping them in a frozen state may be constructed in various ways and of different shapes. The apparatus shown in the drawing, however, will suffice to illustrate the principle and mode of operation.

A is a box, of wood or other suitable material, in which

E. Piper,

Preserving Fish and Meats by Freezing.
N^o 31,736. Patented Mar. 19, 1861.



Witnesses:

At Amos.

Geo. H. Smith

Inventor:

Emack Piper

Statement of the case.

the fish are laid in small quantities on a rack, R. The said box is surrounded by a packing of charcoal or other suitable non-conducting material.

1 2 3 4 are metallic pans, which being filled with a freezing-mixture, such as salt and ice, are then set over the fish, and the cover A' is shut upon them. The temperature in the box soon falls to 10° or 15° below the freezing point of water, and in about twenty-four hours (the mixture being changed once in twelve hours) the fish will be frozen completely through. After being thus frozen the fish or meats may, if desired, be covered with a coating of ice by immersing them a few times in ice-cold water, or by applying the water with a brush or swab several times, forming a coat of about one-eighth of an inch in thickness. To prevent the ice from cracking off I then apply to the fish, when they are to be kept an unusual length of time, a cover of cloth, and in the same manner cover the cloth with another coating of ice, or they may be coated with gum-arabic, india-rubber, gutta-percha, tin-foil, or any suitable substance (either in combination or separately) that will effectually exclude the air and prevent the juices from escaping by evaporation, thereby preserving the same plump and fresh appearance as when first frozen. The fish are then packed closely together in a large preserving-box, C, which is inclosed in a still larger box, B, the space between the two boxes being filled with charcoal or other non-conducting material to exclude heat.

Passing through the inner-box are metallic tubes D, which are open at the upper ends for the introduction of a freezing-mixture, the lower extremities being formed with flanges, which are screwed to the bottom of the box. A small pipe F leads from the bottom of each tube D to the outside of the outer box, the object of said pipes being to draw off the brine from the tubes D as often as required. When not used for this purpose the pipes are stopped by any suitable means at their outer ends.

a a are slats or covers, which may be removed at pleasure for the purpose of putting in or taking out the fish.

Statement of the case.

B' is the cover of the outer box, and is provided with holes D', through which, when the cover is shut down, the tubes D may project, so that they may be charged with the freezing-mixture without opening the box.

The combined area of the tubes D may be about one-fifth that of the chamber C. By keeping the said tubes filled with the mixture of salt and ice the temperature of the preserving-chamber can be maintained for any length of time below the freezing-point, and fish surrounded by this dry and freezing atmosphere will be preserved as fresh and good as when first caught, and for a much longer period than by any other method known to me.

E E E' E' are small holes for introducing a thermometer to ascertain the temperature in the chamber.

I do not desire to be understood as confining myself to the use of the specific apparatus above described, nor to the use of either or both the preliminary processes of freezing and coating; but I have described the mode of operation which by experience I have found best for preserving the most delicate varieties of fish.

In the case of meats it is not necessary to resort to the coating process, especially beef and pork preserved for salt-packing in warm weather, which can be done by this treatment with no more loss than in the best winter weather, while the cold pickle or brine of the dissolving salt and ice is ready-made, and may be drawn off as required to pickle the barrels after packing the meats, etc.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

Preserving fish or other articles in a close chamber by means of a freezing-mixture having no contact with the atmosphere of the preserving-chamber, substantially as set forth.

ENOCH PIPER.

Witnesses:

N. AMES,

GEO. H. SMITH.

Statement of the case.

JOHN GOOD, OF PHILADELPHIA, PA.*

Letters Patent No. 12,058, dated December 12th, 1854.

The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, John Good, of the city of Philadelphia, in the county of Philadelphia, and the State of Pennsylvania, have invented a new and useful Improvement on the "Corpse-Preserver" for the preservation of dead bodies in warm weather until burial; said improvements consisting in certain additions to the apparatus now in use which tend to more effectually exclude the air from the corpse; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Fig. 1 is a perspective view;

Fig. 2 a longitudinal vertical section of the apparatus complete;

Fig. 3 a tranverse vertical section on the line *a b*;

Fig. 4 a top plan of the case or box, the lid and tray being removed;

Fig. 5 a top plan of the tray;

Fig. 6 a bottom plan, and

Fig. 7 a perspective view of the same.

Fig. 8 a tranverse vertical section of the tray on the line *c d*; like letters refer to like parts; letter A, the box or case; B, the lid; C, ice tray; D, false bottom resting upon the ice, upon which is placed the corpse; E, glazed open-

* It will be observed that the patent is cited in the opinion as of date August 17, 1842; it is also cited in the brief as August 17, 1843, and an improvement patent dated December 12, 1854. There is no patent of record in the United States Patent Office dated either August 17, 1842, or August 17, 1843. The patent here reproduced corresponds to the date given in the brief and the opinion as that of the improvement patent, and appears to be the patent there referred to.

Statement of the case.

ings in the lid ; F, glazed opening in the tray immediately under and corresponding with that in the lid ; G, a reservoir in shape like the frustrum of a cone inverted and open at the top ; H, a pipe carried above the bottom of the reservoir G, and extending downwards to within a short distance of the bottom of the box or case ; I, a pipe leading from the tray C to the reservoir G, the extremity of said pipe being carried a little one side, and below the top of the pipe H ; K, a pipe in the bottom of the box of sufficient size to carry off the water from the melting ice in both tray and box ; L, a reservoir under the box into which the pipe K discharges, said pipe being carried below the aperture of the reservoir L, is whilst in use immersed in the water.

The object of this arrangement, and also that of the pipe I, being to exclude the air from the corpse and thereby tend to its better preservation. The tray C is made with a collar *n*, the use of the said collar being to render the preserver air tight. When the lid is removed for the purpose of replenishing the ice in the tray, the collar being made to fit over that part of the box marked *m*, and resting in a gutter which is carried round the box as shown in the drawing, Fig. 4, the gutter being partly filled with water. The space below the false bottom D, in Fig 2, is represented with ice in it ; the top B covering the whole forms with my improvement a perfectly air tight "corpse-preserver."

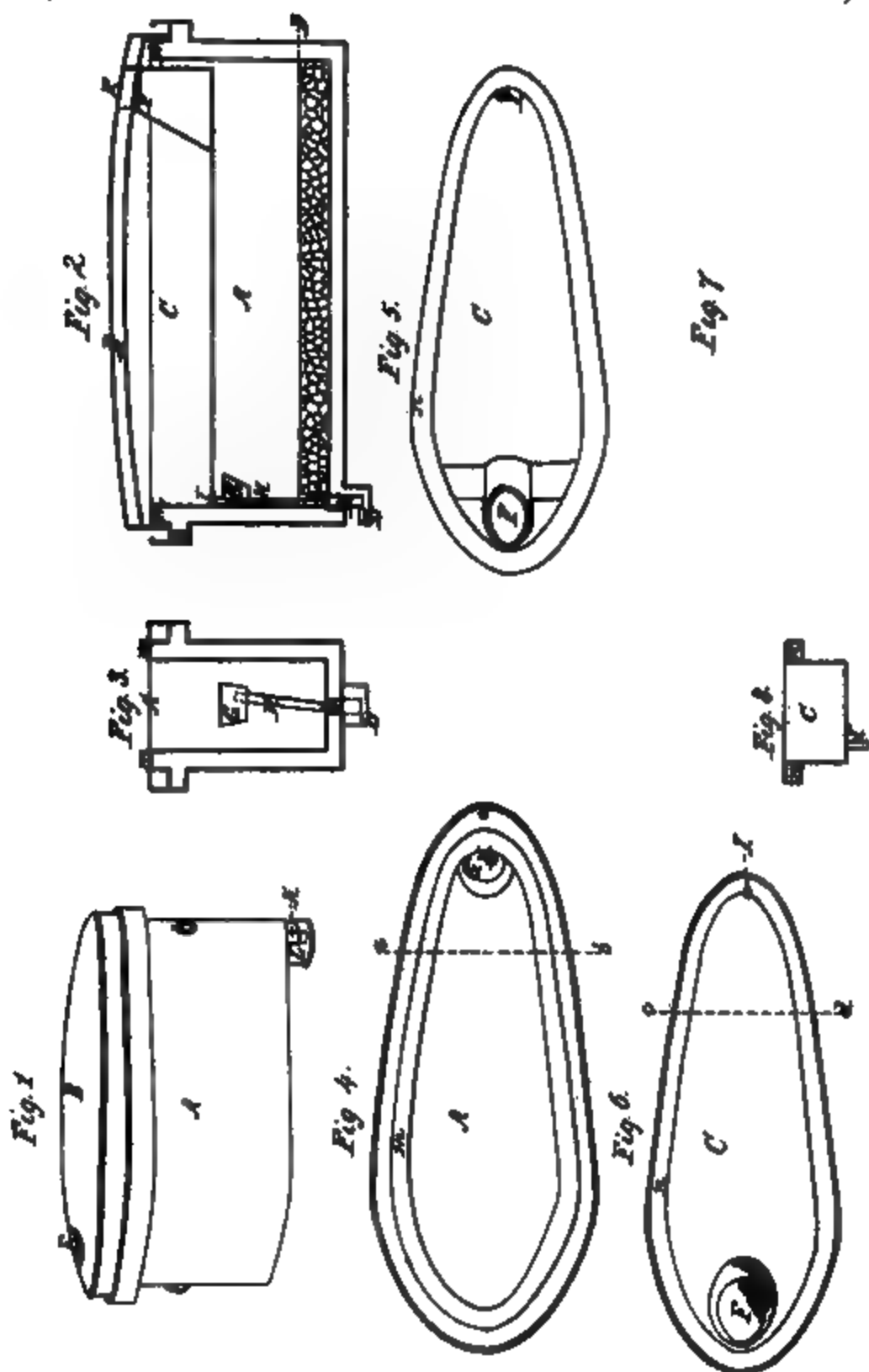
The corpse-preserver being made with double walls, and in all other respects being precisely similar to those in use, I do not deem it necessary to give a full description of the same, further than to state that the hole marked "*h*," is rendered water tight by the insertion of a plug.

The operation of my improvements is as follows : The lower portion of the case is filled with a sufficiency of ice upon which the false bottom D rests, upon this bottom the corpse is placed ; the tray is then put in its place, as shown in Fig. 2, with ice in it ; the lid B being then placed over

*J. Good,
Coffin,*

N^o 12,051.

Patented Dec. 12, 1854.



Argument of counsel.

all ; as the ice in the tray melts the water is carried off by means of the tube I into the reservoir G, from which it escapes by means of the pipe H, the lower end of the pipe I being below the upper end of the pipe H, is consequently immersed in the water. The water from the tray and box passes into the reservoir L, by means of the pipe K, the water escaping from the reservoir by means of the aperture, as shown in Fig. 5, into any suitable vessel placed under to receive it.

The pipes I and K having their lower ends immersed in the water form what may aptly be termed a water-lock, thus preventing the entrance of the air either from above or below, and thereby tending to the better preservation of the corpse.

Claim : I am aware that water valves and joints are in common use, and therefore do not claim these devices separately ; but what I do claim and desire to secure by Letters Patent of the United States is the collar *n*, the reservoir G and L, in connection with the pipes H, I and K, the various parts being arranged and connected as set forth in the specifications and accompanying drawings, and acting in the manner and for the purposes herein specified.

Witnesses :

JOHN GOOD.

JOHN B. KENNEY,
R. PHILLIPS.

Messrs. Geo. Gifford and Edward Avery, for the appellants :

The first question in order is, what is the scope of appellee's patent? It is plain and certain that the thing patented is a *process* ; that it is not limited to any particular *kind* of apparatus, but includes the doing of the thing by any kind of apparatus in which the air of the preserving chamber is excluded from the freezing mixture. The patented process consists of the *act* of "*preserving fish or other articles in a close chamber by means of a freezing mixture having no contact with the atmosphere of the preserving chamber.*"

Argument of counsel.

Now let us see what essentials this patented process is composed of.

1st. There must be an article to preserve. 2d. It must be in a close chamber. 3d. There must be a freezing mixture. 4th. The *freezing mixture* must have substantially no contact with the atmosphere of the chamber in which the article to be preserved is placed. 5th. The article in the preserving chamber must by these means be preserved.

Wherever and whenever these five things are found together the patented process is employed. If they were in existence together prior to the time of the alleged invention of Mr. Piper, then his patent, like many others from similar causes, is invalid.

See, Piper v. Moon, 10 Blatch. 264.

It is respectfully submitted that Gardiner T. Swartz, in his use of the Good apparatus for preserving dead bodies, practiced the process patented by appellee. And it is entirely immaterial whether Swartz produced a temperature of the atmosphere in the chamber below the freezing point of water, or whether the body was frozen therein little or much, or none at all, so long as it was preserved therein, as Swartz said he did it, with no contact between the atmosphere of the chamber and the freezing mixture which was in the pan isolated from that atmosphere.

Racey had two freezers, one was constructed in 1855, or early in 1856, and was used until 1858, another was constructed in 1859.

Both of these freezers antedate the patent of Piper, which was issued March 19, 1861, but by rebutting proof Piper proved his invention back to June, 1858, thus antedating Racey's freezer of 1859.

The proof respecting the use of Racey's first freezer through the years 1856, 1857 and 1858, stands unimpaired.

He preserved both fish and ice in a closed chamber by means of a freezing mixture. He also froze fish in a close chamber by means of a freezing mixture so applied that

Argument of counsel.

the freezing mixture was not in communication with the atmosphere of the preserving chamber.

If any one were now to pack and preserve fish as Racey did in 1856, 1857 and 1858 would he thereby infringe the Piper patent? He would be correctly charged with doing exactly what Piper first defines and then claims to be his invention, and there would be no way in which he could escape the charge of infringement.

Whatever would be an *infringement* of a patent, is sufficient to invalidate the patent if known and used prior to patentee's invention.

Mr. Causten Browne for appellee:

The court will observe that, as regards the validity of Piper's first patent, viz: for the *process*, the mere fact that any previously existing apparatus *could have been* so used as to involve the practicing of that process avails the appellants nothing. Doubtless there have been many apparatuses long known, and used in other ways and for other purposes, which might have been used in such a way, and for such a purpose, as Piper's first patent covers. This is nothing more than to say that his first patent is for a *process*, and not for the apparatus, which he has (for illustration,) described as suitable for carrying out his process.

The court will also observe that Piper's invention is of a process by which animal and vegetable substances are completely frozen—frozen through and preserved in that state for weeks, or months, or years. No such thing is ever required to be done with a human body.

The patent cannot be construed as for the apparatus described. It is not a patent for a machine or a manufacture within the meaning of the act of 1870, sec. 24, allowing patents for an "art, machine, manufacture or composition of matter," but it is a patent for an improvement in the *art* of preserving fish and other substances from decay. The patentee calls it a method. It is really for a peculiar process. Neither term is used in the Patent Act, but either suffi-

Argument of counsel.

ciently indicates the nature of the invention, and each is synonymous with "art," as that term is used in the act.

Corning v. Burden, 15 How. 252 [6 Am. & Eng. 69]; Curtis on Pats., secs. 9—18; Tilghman v. Werk, 2 Fish. 578; O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483].

The court having ascertained what the invention actually was, will give the patent such construction as will secure the whole of that invention, interpreting the language of the specification liberally for that purpose, if necessary.

Curtis on Pats., secs. 225, 231, 453, 456, and cases cited.

If the construction here put upon the patent is correct, the question of the novelty of Piper's invention is, not whether the apparatus described in the patent was new, nor whether any apparatus was in existence before his invention which might have been so used as to practice the invention; but whether the patented process as described was in fact so practiced.

And to overthrow his patent for want of novelty, it must be proved that before his invention fish or other articles had been frozen and preserved by a process in which the articles were frozen and preserved by immersion in the freezing atmosphere of a chamber, that atmosphere being reduced and kept below the freezing point by a refrigerating mixture, which had substantially no communication with such atmosphere.

It does not appear that before his invention fish or other substances had ever been really frozen and kept frozen so as to be fit for market; nor that that has ever been done since his invention, save by the use of it; and it clearly appears that the use of it has added largely to the value of the fish business in this country.

Piper's experiments began in the winter and spring of 1858. In the spring of 1858, he froze a few fish, principally to ascertain whether fish artificially frozen would be the same as those naturally frozen. The result was satisfactory. He used for this purpose a small temporary apparatus, of which Piper Model No. 1, is a representation.

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In June, 1858, he constructed and used the apparatus of which Piper Model No. 2, is a representation. This had two chambers, the air in which was reduced and kept below the freezing point by the influence of the freezing mixture contained in vertical tubes within the chambers; the space around the chambers being packed with a non-conducting substance, having no communication with the atmosphere of the chambers. The use of this apparatus, in the manner described, was a complete reduction to practice of the invention which is the subject of Piper's *first patent*. The apparatus was made to be used, and was in fact used, so as to carry out the patented process.

This apparatus, and the new process of freezing and preserving fish, are described generally in Piper's caveat filed in July, 1858.

Mr. Justice SWAYNE delivered the opinion of the court: The bill is founded upon two patents granted by the United States to the appellee—one numbered 732 [now numbered 31,736], of the 19th of March, 1861; the other numbered 36,107 and dated Aug. 5, 1862. The second and later patent was not relied upon in the argument here and may, therefore, be laid out of view. Our attention will be confined to the prior one. It is declared in the specification to be “for a new and improved method of preserving fish and meats.” The invention is alleged to consist “in a method of preserving fish and other articles in a chamber, and cooling the latter by means of a freezing mixture, so applied that no communication shall exist between the interior of the preserving chamber and that of the vessels in which the freezing mixture is placed.” The specification continues: “I do not profess to have invented the means of artificial congelation, nor to have discovered the fact that no decay takes place in animal substances so long as they are kept a few degrees below the freezing point of water; but the practical application of them to the art of

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preserving fish and meats, as above described, is a new and very valuable improvement. The apparatus for freezing fish and keeping them in a frozen state may be constructed in various ways and of different shapes. The apparatus shown in the drawing, however, will suffice to illustrate the principle and mode of operation."

The process and apparatus are then described as follows: a box of wood or other suitable material, surrounded by a packing of charcoal or other non-conducting substance, is to be provided, and the fish in small quantities laid in it on a rack. Metallic pans filled with a freezing mixture, such as salt and ice, are then to be set over them, and a cover shut over the pans. "In about twenty-four hours, the freezing mixture having been changed once in twelve hours, the fish will be frozen completely through."

After being frozen, the fish or meat may, if desired, be covered with a thin coating of ice; and this coating may be preserved by applying the substances named, which will exclude the air, and prevent the juices from escaping by evaporation. "The fish are then to be packed closely in a large preserving box, which is inclosed in a still larger box; the space between the boxes being filled with charcoal or other non-conducting material, to exclude the heat." Other minor details are described, which it is not deemed material to repeat. The patentee then declares: "I do not desire to be understood as confining myself to the specific apparatus above described, nor to the use of either or both the preliminary processes of freezing and cooling; but I have described the mode of operation, which, by experience, I have found best for preserving the most delicate varieties of fish." The summation and claim are: "Having described my invention, what I claim as new, and desire to secure by letters patent, is, preserving fish or other articles in a close chamber by means of a freezing mixture, having no contact with the atmosphere of the preserving chamber, substantially as set forth."

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The patent is not for the principle long and well known to physicists, that a low degree of cold, like a high degree of heat, prevents the decay of animal matter; nor is it for the freezing of the articles to be preserved before or after they are placed in the preserving-chamber; nor is it for applying, by means of an apparatus with any particular details of construction, cold to the articles to be preserved; nor is it for the frigorific effect of the freezing mixture upon the atmosphere of the inner chamber; but it is for the application to such articles of the degree of cold necessary to preserve them, by means of "a close chamber," in which they are to be placed, and "a freezing-mixture having no communication with the atmosphere of the preserving chamber."

If this result be reached by the means designated in any way substantially the same with that described, having the feature of the non-contact of the freezing-mixture with the air of the preserving-chamber, there is a clear invasion of the territory which the patentee has marked out and seeks to appropriate to himself.

It was earnestly maintained by the learned counsel for the appellee that the essence of the invention is the creation of "a freezing atmosphere" in the preserving-chamber.

To this there are several answers. There is nothing in the specification or claim to warrant the proposition. The direction is, that "the fish are to be packed closely." This implies clearly that as many fish are to be put into the preserving chamber as it can be made to contain.

Atmospheric air is itself an agent of decay; and in all such cases it is important to preclude, as far as possible, its presence and contact. "If air be absolutely excluded, putrefaction ceases; and the result is the preservation of the substance in some circumstances, perhaps in all." 3 Ure's Dict. of Arts, 548. "On this principle is founded Appert's process, by which easily decomposable articles of food and drink, such as meat, fish, vegetables, milk, etc.,

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are preserved for years, viz. : by packing them in air-tight bottles or soldered tin cans, heating the vessels for several hours in boiling water, and keeping them carefully closed." 2 Watts' Dict. of Chem., 625. The patentee is to be presumed to have known this property of air.

The patent is for "a new and useful improvement" in the art to which it relates. It was issued under the act of July 4, 1836. The rights of the parties are to be considered in the light of that act. The defense relied upon in the answer is the want of novelty; and several instances of prior use and knowledge, with the requisite circumstances of time, place and persons, are alleged.

We deem it sufficient to consider one of them. On the 17th of August, 1842, a patent was issued to John Good "for a corpse-preserver." The apparatus, as described, was an outer case with a close-fitting lid. The case was made double; there being a partition to within four or five inches, more or less, of the top of the outer one, leaving a space between the two of several inches, which was to be filled with ice. There was a false bottom with holes in it in the inner compartment. It rested upon ledges which kept it four or five inches above the bottom. The intervening space was a receptacle for ice. The corpse was deposited upon the false bottom. A tray was placed over it, and under the lid. The tray was four or five inches deep, used to contain the freezing mixture, and had a flange to prevent the mixture from escaping. Proper outlets were provided for the passage of the water from the melting ice. There was no communication between the tray containing the freezing mixture and the inner compartment containing the body. Swartz, an intelligent and unimpeached witness, was examined on the 15th of October, 1869. He testified that he was an undertaker, and had used the apparatus for about twenty years, sometimes with ice under the false bottom and sometimes without it. In either case he applied a sufficient degree of cold to prevent putrefaction

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before interment. He thought the bodies were sometimes frozen, but was not certain. The material point in his business was the prevention of decay for the time being; and that was always accomplished.

Here was the application of the requisite degree of cold, exactly in the manner called for in the specification of the appellee.

This is hardly denied; but it is insisted that the process was never applied by the witness to the preservation of fish and meats.

The answer is that this was simply the application by the patentee of an old process to a new subject, without any exercise of the inventive faculty and without the development of any idea which can be deemed new or original in the sense of the patent law. The thing was within the circle of what was well known before, and belonged to the public. No one could lawfully appropriate it to himself and exclude others from using it in any usual way for any purpose to which it may be desired to apply it.

This is fatal to the patent. *Ames v. Howard*, 1 Sumn. 487; *Howe v. Abbott*, 2 Story, 194; *Bean v. Smallwood*, 2 Story, 411; *Winans v. R. R. Co.*, 2 Story, 412; *Hotchkiss v. Greenwood*, 11 How. 248 [5 Am. & Eng. 240].

There is another view of the case that may properly be taken.

Evidence of the state of the art is admissible in actions at law under the general issue without a special notice, and in equity cases, without any averment in the answer touching the subject. It consists of proof of what was old and in general use at the time of the alleged invention. It is received for three purposes and none other—to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.

Of private and special facts, in trials in equity and at law, the court or jury, as the case may be, is bound carefully to exclude the influence of all previous knowledge.

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But there are many things of which judicial cognizance may be taken. "To require proof of every fact, as that Calais is beyond the jurisdiction of the court, would be utterly and absolutely absurd." Gres. Ev. in Eq. 294. Facts of universal notoriety need not be proved. See Taylor Ev., sec. 4, n. 2. Among the things of which judicial notice is taken, are: the law of nations; the general customs and usages of merchants; the notary's seal; things which must happen according to the laws of nature; the coincidences of the days of the week with those of the month; the meaning of words in the vernacular language; the customary abbreviations of christian names; the accession of the Chief Magistrate to office and his leaving it. In this country, such notice is taken of the appointment of members of the cabinet, the election and resignations of senators and of the appointment of marshals and sheriffs, but not of their deputies. The courts of the United States take judicial notice of the ports and waters of the United States where the tide ebbs and flows, of the boundaries of the several States and judicial districts, and of the laws and jurisprudence of the several States in which they exercise jurisdiction. Courts will take notice of whatever is generally known within the limits of their jurisdiction; and, if the judge's memory is at fault, he may refresh it by resorting to any means for that purpose which he may deem safe and proper. This extends to such matters of science as are involved in the cases brought before him. See, 1 Greenl. Ev., 11; Gres. Eq. Ev., *supra*; and Taylor, Ev. sec. 4, and *post*.

In *The Ohio L. & T. Co. v. Debolt*, 16 How. 435, it was said to be "a matter of public history, which this court cannot refuse to notice, that almost every bill for the incorporation of companies" of the classes named, is prepared and passed under the circumstances stated. In *Hoare v. Silverlock*, 12 Ad. & Ell. (N. S.) 624, it was held that where a libel charged that the friends of the plaintiff had

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“realized the fable of the frozen snake,” the court would take notice that the knowledge of that fable existed generally in society. This power is to be exercised by courts with caution. Care must be taken that the requisite notoriety exists. Every reasonable doubt upon the subject should be resolved promptly in the negative.

The pleadings and proofs in the case under consideration, are silent as to the ice cream freezer. But it is a thing in the common knowledge and use of the people throughout the country. Notice and proof were, therefore, unnecessary. The statute requiring notice was not intended to apply in such cases. The court can take judicial notice of it and give it the same effect as if it had been set up as a defense in the answer and the proof were plenary. See, *Glue Co. v. Upton*, 6 Pat. Off. Gaz. 843, and *Needham v. Washburn*, 7 Pat. Off. Gaz. 651—both decided by Mr. Justice Clifford upon the circuit. We can see no substantial diversity between that apparatus and the alleged invention of the appellee. In the former, as in the apparatus of the appellee, “the freezing mixture” has “no contact with the atmosphere” of the chamber where the work is to be done. If the freezer be full and the preserving chamber be full, there would be room for but little air in either. If either were only partially full, the vacuum would be filled with that substance. The cold is generated by the same materials and applied under the same circumstances. If the cream were taken out of the freezer and fish put in, there would be, in all substantial respects, the same apparatus, process and result. If the preserving chamber were as tight as the freezer, either might be convertibly used for the purpose of the other.

“The preservative effect of cold, and especially of dry cold, is well known and exemplified in the keeping of meat and fruit in ice-houses. Animals have been found undecomposed in the ice of Siberia which belong to extinct

Notes and Citations.

species, and which must have been embalmed in ice for ages." Tit. "Antiseptic," 1 Amer. Encyclo. 570.

Artificial freezing is usually applied to water and articles of food.

"There are two general methods of effecting it, viz. : by liquefaction and by vaporization and expansion. The method by liquefaction is performed by freezing mixtures, which are formed by mixing together two or more bodies, one or all of which may be solid. They are used together in vessels having three or more concentric apartments—an inner one, containing the article to be frozen; one eccentric to this, containing the freezing mixture, provided with some contrivance for agitation; one, again, outside of this, filled with a non-conductor of heat, as powdered charcoal, gypsum or cotton wool; and sometimes one between them for holding water." Tit. "Freezing," 7 Amer. Encyclo. 474.

Here the principle and substance of the appellee's claim are set forth as belonging to the general domain of knowledge and science. It is known that Lord Bacon applied snow to poultry to preserve it. He said the process succeeded "excellently well." The experiment was made in his old age, imprudently, and brought on his last illness.

Examined by the light of these considerations, we think this patent was void on its face and that the court might have stopped short at that instrument and, without looking beyond it into the answers and testimony, *sua sponte*, if the objection were not taken by counsel, well have adjudged in favor of the defendant.

These views render it unnecessary to consider the exceptions to the master's report.

The decree of the Circuit Court is reversed and the cause will be remanded, with directions to dismiss the bill.

91 U. S. 43-44.

Notes :

1. Double use:

Phillips v. Page, 24 How. 164 [7 Am. & Eng. 97].

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Tucker v. Spaulding, 13 Wall. 453 [8 Am. & Eng. 474].
Roberts v. Ryer, 91 U. S. 150 [p. 302 *post*].
Vinton v. Hamilton, 104 U. S. 485.
Slawson v. Railroad Co., 107 U. S. 649.
Stephenson v. Brooklyn Ry. Co., 114 U. S. 149.

Analogous use:

Collar Co. v. Van Deusen, 23 Wall. 530 [p. 156 *ante*].
Railroad Co. v. Locomotive Truck Co., 110 U. S. 490.
Morris v. McMillin, 112 U. S. 244.
Blake v. San Francisco, 113 U. S. 679.
Stephenson v. Brooklyn Ry. Co., 114 U. S. 149.
Western Electric Mfg. Co. v. Ansonia Brass Co., 114 U. S. 447.
Eachus v. Broomall, 115 U. S. 429.
Miller v. Foree, 116 U. S. 22.
Dreyfus v. Searle, 124 U. S. 60.

3. Evidence of the state of the art is admissible without special notice:

Vance v. Campbell, 1 Black, 427 [7 Am. & Eng. 117].
Railroad Co. v. Du Bois, 10 Wall. 47 [8 Am. & Eng. 433].
Dunbar v. Meyers, 94 U. S. 187.
Bridge Co. v. Iron Co., 95 U. S. 274.
Eachus v. Broomall, 115 U. S. 429.
Grier v. Wilt, 120 U. S. 412.

4. Judicial notice:

Railroad Co. v. Winans, 17 How. 30 [6 Am. & Eng. 221].
Terhune v. Phillips, 99 U. S. 592.

Notes and Citations.

Slawson v. Railroad Co., 107 U. S. 649.

King v. Gallun, 109 U. S. 99.

Phillips v. City of Detroit, 111 U. S. 604.

Patent in suit:

No. 81,736. Piper, E. March 19, 1861. Preserving
Fish, *a*.

No. 86,107. Piper, E. August 5, 1862. Preserving Ani-
mal Substances, *b*.

OTHER SUITS ON SAME PATENT :

Piper v. Brown, 1870. 1 Holmes, 20; 4 Fish. 175, *a*, *b*.

Piper v. Moon, 1872. 10 Blatch. 264, *a*.

Piper v. Brown, 1873. 1 Holmes, 196; 6 Fish. 240, *a*.

Piper v. Moon, 1875. 91 U. S. 44 [p.300 *post*], *a*, *b*.

Cited :**IN SUPREME COURT IN :**

Piper v. Moon, 1875. 91 U. S. 44; Bk. 23 L. ed. 202.

Dunbar v. Meyers, 1876. 94 U. S. 187; Bk. 24 L. ed. 84.

Express Co. v. R. R. Co., 1879. 99 U. S. 191; Bk. 25 L. ed. 319.

Terhune v. Phillips, 1879. 99 U. S. 592; Bk. 25 L. ed. 298.

Densmore v. Scofield, 1880. 102 U. S. 375; Bk. 26 L. ed. 214.

Daniels v. Tearney, 1880. 102 U. S. 415; Bk. 26 L. ed. 187.

Slawson v. Railroad, 1883. 107 U. S. 649; Bk. 27 L. ed. 576.

King v. Gallun, 1883. 109 U. S. 99; Bk. 27 L. ed. 870.

Pennsylvania R. R. Co. v. Locom. Truck Co., 1884. 110 U. S. 490;
Bk. 28 L. ed. 222.

Notes and Citations.

Phillips v. Detroit, 1884. 111 U. S. 604; Bk. 28 L. ed. 532.
Mahn v. Harwood, 1884. 112 U. S. 354; Bk. 28 L. ed. 665.
Eachus v. Broomall, 1885. 115 U. S. 429; Bk. 29 L. ed. 419.
Grier v. Wilt, 1887. 120 U. S. 412; Bk. 30 L. ed. 712.

IN CIRCUIT COURTS IN:

Vaughn v. Cent. Pac. R. R. Co., August, 1877. 4 Sawy. 280; 3 Ban. & Ard. 27.
Comstock v. Sandusky Seat Co., January, 1878. 3 Ban. & Ard. 188; 13 O. G. 230.
Snow v. Taylor, October, 1878. 4 Ban. & Ard. 5; 14 O. G. 861.
Cone v. Morgan Envelope Co., January, 1879. 4 Ban. & Ard. 107.
Walker v. Rawson, February, 1879. 4 Ban. & Ard. 128.
Alcott v. Young, March, 1879. 16 Blatch. 134; 4 Ban. & Ard. 197; 16 O. G. 403; 7 Reporter, 552.
Quirolo v. Ardito, January, 1880. 17 Blatch. 400; 5 Ban. & Ard. 80; 1 Fed. Rep. 610; 9 Reporter, 340.
Root v. Welch Mnfg. Co., February, 1880. 17 Blatch. 478; 4 Fed. Rep. 423; 5 Ban. & Ard. 189; 17 O. G. 849.
Eagleton Mnfg. Co. v. West, Bradley & Cary Mnfg. Co., June, 1880. 18 Blatch. 218; 5 Ban. & Ard. 475; 10 Reporter, 297.
McKloskey v. Du Bois, April, 1881. 19 Blatch. 207; 8 Fed. Rep. 710; 19 O. G. 286.
Western Electric Mnfg. Co. v. Ansonia Brass & Copper Co., December, 1881. 20 Blatch. 170; 9 Fed. Rep. 706.
Western Electric Mnfg. Co. v. Odell, October, 1883. 18 Fed. Rep. 321.
Cottier v. Stimson, August, 1884. 10 Sawy. 212; 20 Fed. Rep. 906.
New York B'ing & Bushing Co. v. Doelger, March, 1885. 23 Blatch. 167; 23 Fed. Rep. 191; 32 O. G. 651.
Knapp v. Benedict, February, 1886. 26 Fed. Rep. 627; 35 O. G. 1226.
Reed v. Lawrence, October, 1886. 29 Fed. Rep. 915.
Leonard v. Lovell, December, 1886. 29 Fed. Rep. 310.
West v. Rae, November, 1887. 33 Fed. Rep. 45.

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Kaolatype Engraving Co. v. Hoke, March, 1887. 30 Fed. Rep. 444.
Ligowski Clay-Pigeon Co. v. American Clay-Bird Co., March, 1888.
34 Fed. Rep. 328.
Blessing v. John Trageser Steam Copper Works, April, 1888. 34
Fed. Rep. 753.

IN DECISIONS OF COMMISSIONER OF PATENTS IN:

Anson v. Woodbury, April, 1877. 12 O. G. 1.

IN TEXT-BOOKS:

2 Abb. Pat. Law., 1886. pp. 36, 434, 449.
Merwin on Pat. Invt., 1883. pp. 20, 253, 259, 282, 285, 297.
Walker on Pats., 1883. pp. 29, 326, 356, 417, 448.

Notes and Citations.

ENOCH PIPER, APPELLANT, v. GEORGE T. MOON
ET AL.*

91 (1 Otto) U. S. 44. Oct. Term, 1875.

[Bk. 23, L. ed. 202.]

Affirming *Ibid*, 10 Blatch. 264.

Argued October 19, 20, 1875. Decided November 1, 1875.

What is said in *Brown v. Piper*, 91 U. S. 37 [p. 272 *ante*], disposes of this case, which is founded upon the same patent.

[Citations in opinion of the court:]

Brown v. Piper, 91 U. S. 200. [p. 272 *ante*].

Appeal from the Circuit Court of the United States for the Southern District of New York.

The case sufficiently appears in the opinion in this and the preceding case.

*Mr. Causten Browne, for appellant.**Mr. George Gifford, for appellees.*

Mr. Justice SWAYNE delivered the opinion of the court:

The appellant's bill in this case is founded upon the same patent as the bill of the appellee in the case just decided. *Brown v. Piper* [p. 272 *ante*].

In this case the court below dismissed the bill, and the complainant appealed to this court. What was said in the case above referred to disposes of this case.

The decree of the Circuit Court is affirmed.

91 U. S. 441.

Patent in suit:

No. 31,736. Piper, E. March 19, 1861. Preserving Fish.

* See Explanation of Notes, page III

Notes and Citations.

No. 36,107. Piper, E. August 5, 1862. Preserving Animal Substances.

OTHER SUIT ON SAME PATENT :

See *Brown v. Piper*, 91 U. S. 87 [p. 296 *ante*].

Statement of the case.

GEORGE C. ROBERTS, APPELLANT, v. WILLIAM F. RYER.*

91 (1 Otto) U. S. 150-159. Oct. Term, 1875.

[Bk. 23, L. ed. 267; 10 O. G. 204.]

Affirming *Ibid*, 11 Blatch. 11.

Argued April 21, 22, 1875. Decided December 13, 1875.

Particular patent construed. Invention. New use of old machine.

1. Reissued letters patent No. 455, D. W. C. Sanford, May 21, 1857, *construed* in view of the original letters patent No. 13,802, November 13, 1855, Refrigerator, and of patent No. 14,510, A. S. Lyman, March 25, 1856, Method of Cooling and Ventilating Rooms, to be for the combination of the use of the descending current of air with the device for the circulation, *held* to be for a new use of an old machine and not involving invention and to be anticipated by the Lyman patent (p. 326.)
2. It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. (p. 329.)
3. The mere carrying forward, or new or more extended application of the original thought, a change only in forms, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent. (p. 331.)

[Citations in opinion of the court:]

Smith v. Nichols, 21 Wall 112 [9 Am. & Eng. 425], p. 331.

Roberts v. Harnden, 2 Cliff. 500, p. 331.

Appeal from the Circuit Court of the United States for the Southern District of New York.

This case, No. 21, was commenced in the court below by Roberts, the appellant, for the alleged infringement of a

* See Explanation of Notes, page III.

Statement of the case.

patent of which he was the assignee. The patent was granted to one Sanford, November 13, 1855, for Improvements in Refrigerators. It was reissued April 21, 1857. Ryer, the defendant, was the licensee of one Lyman, who had received a patent in March, 1856. The chief defense relied upon was, that the invention of Lyman was prior to that of Sanford, and that the patent of Sanford being for the same invention, was consequently invalid.

The court below dismissed the bill, and the complainant appealed to this court.

The case further appears in the opinion.

The specifications and drawings of the Sanford and Lyman letters patent are as follows :

D. W. C. SANFORD, OF CINCINNATI, OHIO.

Letters Patent No. 13,802. Dated November 13, 1855. Reissued April 21, 1857.

IMPROVEMENT IN REFRIGERATORS.

The schedule referred to in these Letters Patents and making part of the same.

To all to whom these presents shall come:

Be it known, that I, D. W. C. Sanford, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented an Improvement in Refrigerators, and that the following is a full, clear and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying and using the same, reference being had to the annexed drawings, of which,

Fig. 1, exhibits the refrigerator in perspective, and also shows the interior arrangements.

Fig. 2, a vertical section through the refrigerator.

Statement of the case.

My invention consists in an improvement in refrigerators whereby the whole of the contained air is kept in continual rotation, purification, desiccation, and refrigeration, and with economy of ice. The circulation of the air of my refrigerator is entirely confined and consists of a continuous movement or rotation of the air confined within the apartment without any communication with the external air except when it becomes unavoidable from opening the refrigerator. I have found for purification that external air is not necessary, and it is obvious that any arrangement by which a current of external air, after being cooled, is passed through the refrigerator, must be attended with a great consumption of ice, and that any arrangement which admits of stagnation of air in any part of the refrigerator, and does not compel circulation of the air throughout the entire apartments, is highly objectionable. Both of these conditions I have avoided, as will be seen from the following description:

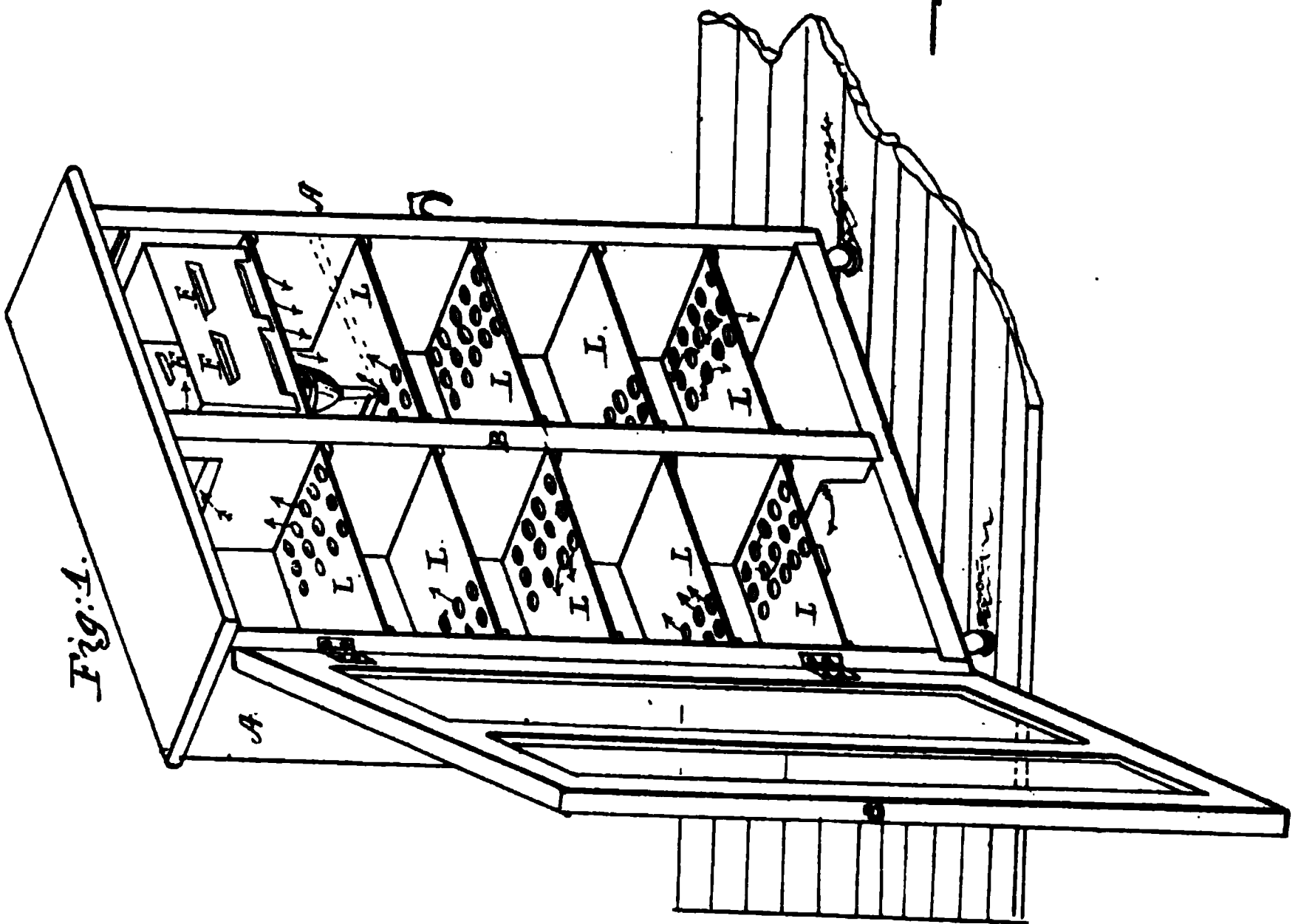
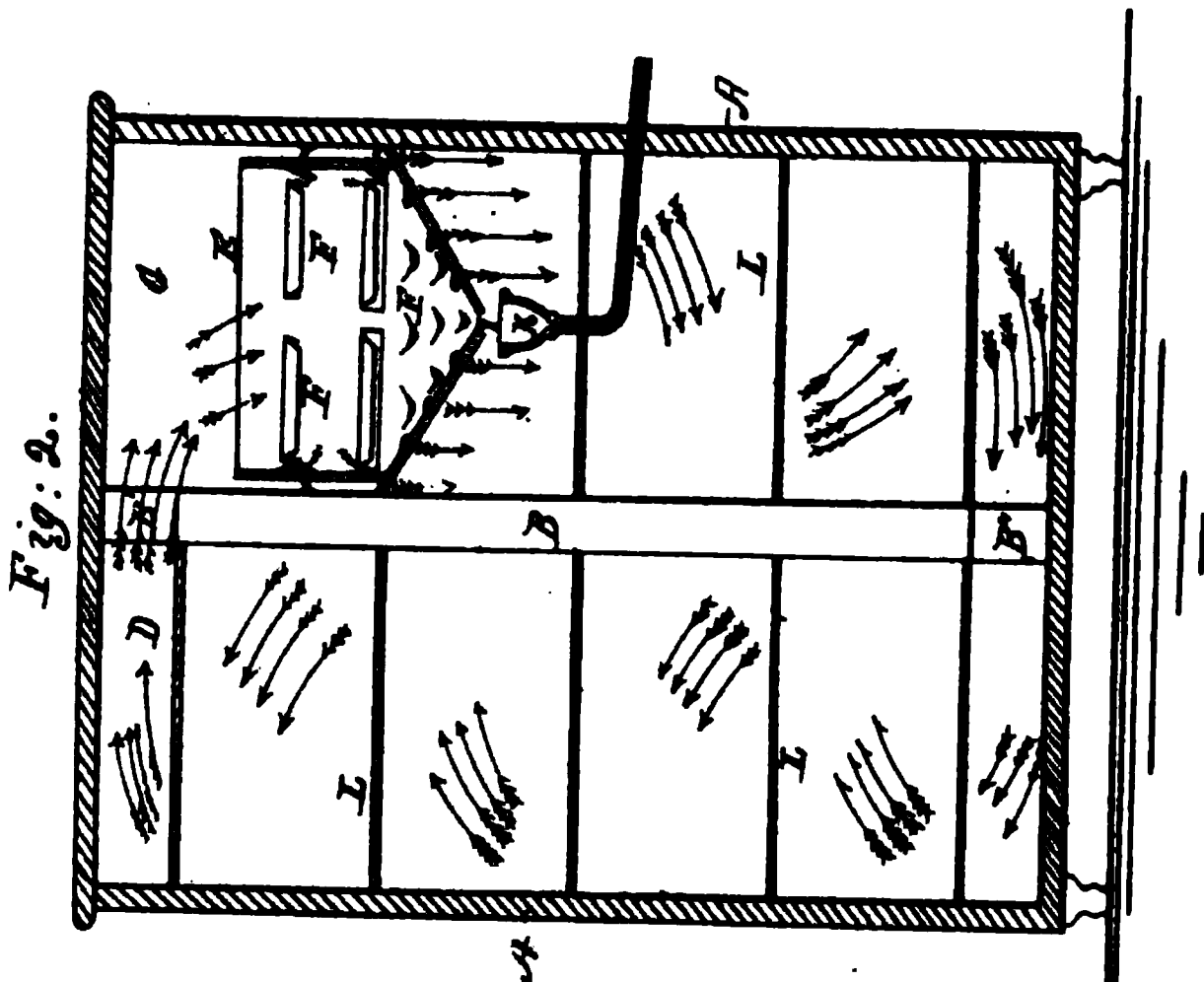
Fig. 1, exhibits clearly the arrangement of the interior of my refrigerator. Within a suitable casing, A, I insert a partition, B, with openings, B', B'', at top and bottom, so that there is free communication between the apartments, C and D. At a high point in one of the apartments, I place the ice receptacle, E; this receptacle is perforated on the sides and bottom so as to allow free passage of air through and in contact with the ice. The ice is prevented from coming into contact with the sides of the receptacle by the projections, F, F', which in this case are made by punching the holes in such a way that a portion of the metal is protruded as seen at F, F'. The bottom of the ice receptacle is funnel shaped so as to conduct the water of the melting ice to a central discharge, I, whence it falls into the cup or flaring end of the escape pipe, K. This pipe passes directly out through the side of the refrigerator and it is important that the escape pipe should occupy as little room as possible, in order not to obstruct the motion of the air. The shelves, L, are perforated to allow of the free transit

D.W.C. Sanford.

Refrigerator.

No 12802.

Patented Nov. 13. 1855.



Statement of the case.

of air, and it will now be readily seen that when the ice is placed in its receptacle, and the refrigerator closed, the whole of the contained air will be set in motion and continue to circulate or revolve as long as there is any ice or refrigerating material in the receptacle.

The operation is as follows: The denser air in contact with the ice and walls of the receptacle descends and its place is immediately supplied by warmer air from apartment D, through the opening B'. The dense air descending through the entire apartment C, and passing through the opening B', keeps up a continual displacement of the whole of the contained air of the refrigerator. The apartment D, has a higher temperature than apartment C, and the temperature varies with a gradual rise from the time the air leaves the receptacle until it arrives at the upper part of apartment D. It is evident that this rotation of the air will continue until the ice is melted, and an equilibrium of temperature takes place throughout the entire refrigerator. As the air passes through the apartments it imbibes moisture from fruits, vegetables, meats and other articles, and when it comes in contact with the ice, its capacity for moisture is diminished by condensation, and the moisture is condensed upon the ice and passes off with the waste water. The circulating air thus being continually desiccated, every part of the apartments is kept from mold and dampness.

The exhalations and odor of meats and other articles are also precipitated upon the ice with the condensed vapor and thus the entire apartments are kept sweet.

I am aware that various modes have been tried and used for circulating air in refrigerators, but I am not aware that in any instance a complete and continued rotation, purification, desiccation and refrigeration of the *whole* of the contained air of the refrigerator has been compelled, as it is in my invention, and I therefore claim the arrangement herein set forth for causing the perpetual rotation of the *whole* of the air contained within the refrigerating apartments, said

Statement of the case.

arrangement consisting when the refrigerator is closed, of an endless passage or chamber, the walls, shelves, and ice receptacle of which are so placed and constructed, that the air is compelled to circulate through the entire apartment or apartments, and from which the water of the melting ice is discharged immediately from the refrigerator instead of flowing between its walls, the whole being constructed as herein above set forth.

D. W. C. SANFORD,

Witnesses :

R. T. CAMPBELL,

CHAS. G. PAGE.

D. W. C. SANFORD, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. 13,802, dated November 13, 1855; Reissue No. 455, dated April 21, 1857.

To all whom it may concern :

Be it known that I, D. W. C. Sanford, of St. Louis, in the county of St. Louis and State of Missouri, have invented an Improvement in Refrigerators ; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Fig. 1 is a perspective view exhibiting the interior of the refrigerator ; Fig. 2, a vertical middle section, and Fig. 3 a perspective of a smaller sized refrigerator with one of the apartments contracted.

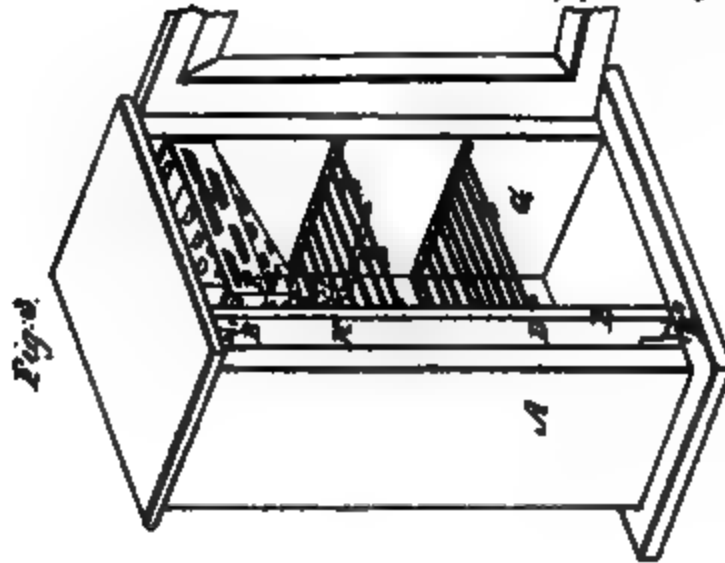
My invention consists in an improvement in refrigerators, whereby the whole of the contained air is kept in con-

D. W. C. Sanford.

Refrigerator.

Reissued Apr. 21. 1857.

Nº 455.



Statement of the case.

tinual rotation, purification, desiccation, and refrigeration, and with economy of ice.

The circulation of the air of my refrigerator is entirely confined, and consists of a continuous movement or rotation of the air confined within the apartment without any communication with the external air except when it becomes unavoidable from opening the refrigerator. I have found for purification that external air is not necessary, and it is obvious that any arrangement by which a current of external air after being cooled is passed through the refrigerator must be attended with a great consumption of ice, and that any arrangement which admits of stagnation of air in any part of the refrigerator, and does not compel circulation of the air throughout the entire apartments, is highly objectionable. Both of these conditions I have avoided, as will be seen from the following description :

Fig. 1 exhibits clearly the arrangement of the interior of my refrigerator. Within a suitable casing, A, I insert a partition, B, with openings B' B'', at top and bottom, so that there is free communication between the apartments C and D. At a high point in one of the apartments I place the ice-receptacle E. This receptacle is perforated on the sides and bottom, so as to allow free passage of air through and in contact with the ice. The ice is prevented from coming into contact with the sides of the receptacle by the projections F F', which in this case are made by punching the holes in such a way that a portion of the metal is protruded, as seen at F F'. The bottom of the ice-receptacle is funnel-shaped, so as to conduct the water of the melting ice to a central discharge, I, whence it falls into the cup or flaring end of the escape-pipe K. This pipe passes directly out through the side of the refrigerator, and it is important that the escape-pipe should occupy as little room as possible in order not to obstruct the motion of the air. The shelves L are perforated to allow of the free transit of air, and it will now be readily seen that when the ice is placed in its receptacle and the refrigerator

Statement of the case.

closed, the whole of the contained air will be set in motion and continue to circulate or revolve as long as there is any ice or refrigerating material in the receptacle.

The operation is as follows: The denser air in contact with the ice and walls of the receptacle descends and its place is immediately supplied by warmer air from apartment D through the opening B'. The dense air descending through the entire apartment C and passing through the opening B' keeps up a continual displacement of the whole of the contained air of the refrigerator. The apartment D has a higher temperature than apartment C, and the temperature varies with a gradual rise from the time the air leaves the receptacle until it arrives at the upper part of apartment D. It is evident that the rotation of the air will continue until the ice is melted, and an equilibrium of temperature takes place throughout the entire refrigerator. As the air passes through the apartments it imbibes moisture from fruits, vegetables, meats, and other articles, and when it comes into contact with the ice its capacity for moisture is diminished by condensation and the moisture is condensed upon the ice and passes off with the waste water. The circulating air thus being continually desiccated every part of the apartments is kept from mold and dampness. The exhalations and odor of meats and other articles are also precipitated upon the ice with the condensed vapor, and thus the entire apartments are kept sweet.

It is well known that mold will not generate in a current of air, and it is known that when once formed it propagates itself and spreads with rapidity; therefore, if any one part of the refrigerator be out of the direct course of circulation the air will stagnate there and develop mold, which will contaminate the whole apartment.

The apartment D may vary in width, and it may be, as shown in Fig. 3, so narrow as to serve merely as a passage for the ascending current of air, the greatest benefit being

Statement of the case.

always derived from the downward current in apartment C.

I am aware that various devices have long since been known for causing the internal circulation of air in apartments of houses and refrigerators; but I am not aware that in any instance a complete and continued rotation, purification, desiccation, and refrigeration of the whole of the contained air of a refrigerator has been compelled under the same arrangement as in my improvement; therefore—

What I claim as my improvement in refrigerators is—

1. The employment of an open-bottom ice-box, or equivalent thereof, in combination with a dividing-partition open above and below, so placed that by means of self-operating internal circulation the whole of the contained air shall be kept in motion and caused to revolve around this partition in currents moving downward only on one side of this partition and upward only on the other side, when the same is combined with a chamber for the refrigeration of food or provisions placed directly under said ice-box, as set forth.

2. I do not claim by itself a partition dividing vertically one compartment of a refrigerator from another; nor do I claim placing articles to be refrigerated in a descending current of air; but I do claim placing shelves or fixtures for holding articles to be refrigerated, or the articles themselves, in the descending current directly under an open-bottom ice-box, in combination with a dividing-partition open above and below, as set forth.

3. In combination with said shelves or fixtures so placed, constructing the open bottom of the ice-box in such manner that the air may pass freely down through the same and fall directly from the ice upon the articles to be refrigerated, while at the same time the drip of the water is prevented, as set forth.

Witnesses:

CHAS. G. PAGE,
R. T. CAMPBELL.

D. W. C. SANFORD.

Statement of the case.

AZEL S. LYMAN, OF NEW YORK, N. Y.

Letters Patent No. 14,510, dated March 25, 1856. Extended March 25th, 1870. Reissued December 26th, 1871.

IMPROVEMENT IN COOLING, DRYING AND DISINFECTING
ROOMS.

The schedule referred to in these Letters Patent and making part
of the same.

To all whom it may concern :

Be it known that I, Azel S. Lyman, of the city, county of and State of New York, have invented certain new and useful Improvements in Cooling, Drying and Disinfecting Rooms, and I do hereby declare that the following is a full, clear and exact description of the same, reference being made to the annexed drawing, making a part of this specification. That is to say—

My improvement in cooling, drying and disinfecting consists in the peculiar construction of the box or reservoir for holding ice or other cooling material. The object sought to be accomplished by this construction is the production of a blast or current of cool air in a determined direction, without mechanical aid and irrespective of place. The principle I employ is that which is exemplified in the hydrostatic column, and my use of it may be understood by the following comparison: If we suspend a cake of ice freely in the air and near to the ceiling of a closed room, slight currents would soon be produced by the disturbance of the equilibrium consequent upon the cooling of the air in contact with the ice. These currents would be feeble, because the cold descending air would spread out over a wide base, and the temperature soon become equalized by mixture with warm air. If, however, we should place under the ice a pipe of sufficient size to surround the ice, the air as it is cooled would fall down and soon fill the pipe, but still have a tendency to spread laterally, in consequence of

A. S. LYMAN.

Air Cooler.

No. 14,510.

Patented March 25, 1856.

Fig. 1

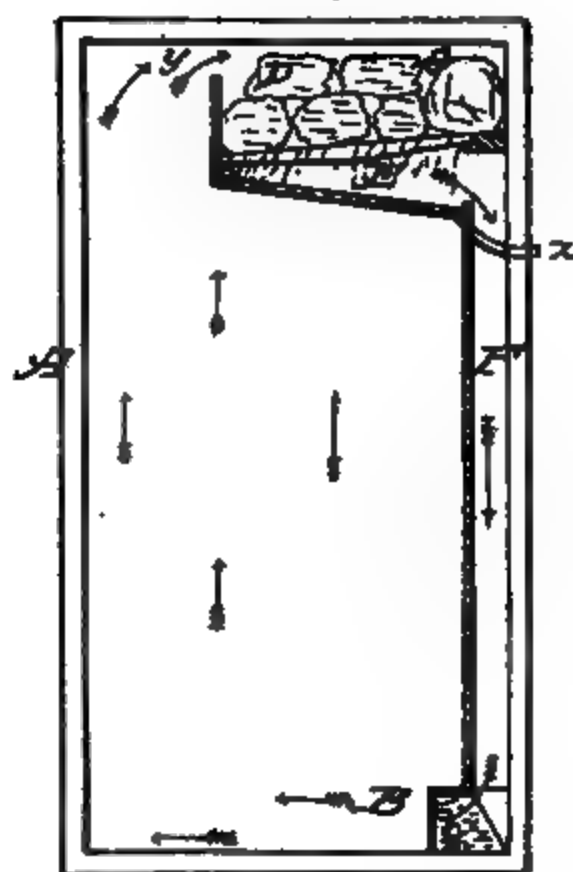


Fig. 2

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its gravity, and therefore it would exert pressure on all sides similar to a non-elastic fluid.

If a plug were now pulled out of the bottom of the pipe this air would pour out with a certain force due to the difference of temperatures outside and inside, and to the height of the column, obeying precisely the same laws which would govern a non-elastic fluid. The construction of a refrigerating box on this principle enables me to employ it to various useful and valuable purposes, such as the preservation of meats and vegetables, ventilating, cooling, drying and disinfecting apartments in hospitals, sleeping and other rooms. All which will appear in the following description of the construction and operation of my refrigerating apparatus:

This apparatus consists of three parts, viz: a reservoir or receptacle for the cooling material, a cold air chamber, and a conduit or blast pipe. The reservoir when adapted for holding ice as the cooling material, is a box open at the top and as shown at D, Fig. 1; this is divided into two compartments by a grating, the latter serving to support the ice, while the space beneath, forms the cold air chamber E, which allows of the free settling of the cold air from all parts of the grate. At F, is the conduit; this is a trunk or pipe attached to the cold air chamber, and may be of differing lengths, according as the blast is to be more or less forcible, the higher the column, the greater being the weight and velocity of the discharge. I will now describe the manner of application, together with some of the various uses to which the instrument may be put. When enclosed within an air-tight compartment (as shown in Fig. 1 at A) and the box D, charged with ice, the moisture will be extracted from the air at the same rate that its temperature is reduced, in the following manner: The air in A is at first of the temperature of the surrounding media, and its hygrometrical condition is the same. Ice being now introduced into the box D, the air in contact will be immediately reduced in temperature; condensation takes place

Statement of the case.

and moisture is deposited. The condensed air being of greater specific gravity falls into the air chamber E, flowing thence to F. Here as it cannot spread out and commingle with the external and lighter air, it drives that already in the pipe before it and out at the bottom, finally pouring out itself in a continuous stream. Once out it still continues to act similar to the flow of water, spreading over the floor, and in doing so displaces the lighter and warmer air, forcing the latter upward toward the top of the apartment. As it there comes in contact with the ice, the condensation and precipitation of moisture goes on until a minimum temperature is reached; thus a continual circulation is kept up in such manner that the whole of the air must circulate through the ice box. Of course all articles such as meats and vegetables would be deprived of their moisture in a like degree with the air, the latter being brought to the condition of great purity and dryness. As the water collects it falls to the bottom of the cold air space E, whence it is discharged to the outside by a suitable pipe as shown at (x).

In cooling living rooms, dairies, etc., I propose where the locations allow of it to employ cold spring or well water as the cooling element for the production of the blast, and for this purpose the refrigerator will be modified in so far as concerns the cooling box. Such modification is shown in Fig. II, the box D being a tank capable of holding water, having an inlet at (p) and an outlet at (r). A series of tubes (arranged vertically will be best) is set in the box as shown at I; these open into the cold air box E, in the same manner as for the ice box, there being a conduit F, as before. The cold well, or spring water may be made to flow through (p) by a "ram" or otherwise, and filling up D, discharges at (r) thus surrounding and cooling all the tubes I. As the air within is cooled it descends into E, flowing thence through F, into the apartment to be cooled, and as the cooling goes on, the moisture condensing from the air will be deposited upon the sides of the tubes, and trickling down

Argument of counsel.

will fall into the trap in E, and be discharged, and the operation will be otherwise as before described. By this means a dairy or other room may be kept dry and cool at little or no expense for the cooling element. For disinfecting, a charcoal box or other suitable agent may be employed, either by combining it with the cold air pipe in manner shown at B, or by placing it at (y') where the warm and moist air passes over to be cooled and dried.

Instead of a single flue, several may be employed in combination with one cooling reservoir. Or where the apartment is of considerable size, more than one reservoir for the cooling materials and flues in like manner may be arranged either to increase the circulation or to reduce the temperature and drying or both as may be required.

I claim as my improvement in cooling, drying and disinfecting rooms, the combination of a descending conduit or cold air flue, with a reservoir for containing cooling materials substantially in the manner and for the purposes described.

AZEL STORRS LYMAN.

Witnesses :

J. P. PIRSSON,
S. H. MAYNARD.

Messrs. Thomas A. Jenckes and George F. Seymour, for appellant: .

The sole issue is upon the question of the novelty of Sanford's patent, and the evidence on that issue is limited to what is shown of the invention and structures of Lyman.

It is contended by the appellant that neither by construction nor in substance can these be held to have anticipated Sanford.

Of Lyman's refrigerators, every experimental one, and none but experimental ones were built on the plan of defendant's exhibits 15, 16, 17 and 18, has not only gone out of existence, but has gone from the memory of all men,

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save Lyman himself. Hadden, who was employed at the Novelty Works at this time, testifies that no more than eight or ten were built besides the one he constructed for himself. That he never exhibited one, or explained its use to any persons besides his family.

Even if this Hadden refrigerator, and its mode of operation bore any resemblance to Sanford's, which is denied by the appellant, it could not be set up to defeat Sanford's patent, as its construction was experimental, its use was private and both construction and use had been abandoned.

Gayler v. Wilder, 10 How. 477 [5 Am. & Eng. 188]; Hall v. Bird, 6 Blatch. 443; Ellithorpe v. Robertson, 4 Blatch. 310; Many v. Jagger, 1 Blatch. 373; Parkhurst v. Kinsman, 1 Blatch. 488; Cahoon v. Ring, 1 Cliff. 592; Winans v. Danforth, Law's Dig., 603 § 76; Adams v. Edwards, 1 Fish. 1; Howe v. Underwood, 1 Fish. 160; Johnson v. Root, 2 Cliff. 108; Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24]; Whiteley v. Swayne, 7 Wall. 685 [8 Am. & Eng. 70]; Hills v. Evans, 8 Jur. N. S. 525; Young v. Fernie, 10 L. T. Rep. (N. S.) 861; Coffin v. Ogden [9 Am. & Eng. 125]; Brown v. Guild [p. 1 *ante*].

Upon the question of novelty, previous structures must be taken exactly as they were, not as they may be modified in the light derived from the invention in question.

If the combination found in the infringing machine is substantially the same combination as that patented, it is of no consequence how much the form of the structure may be modified, so as to resemble prior structures in which the combination did not exist; the disguise will neither excuse the infringement nor destroy the patent.

Roberts v. Harnden, 2 Cliff. 500; Agawam Co. v. Jordan, 7 Wall. 583 [8 Am. & Eng. 24]; Whiteley v. Swayne, 7 Wall. 682 [8 Am. & Eng. 70]; Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290]; Seed v. Higgins, 8 El. & B. 755; Daw v. Eley, Eq. Cas. 3 L. T. 496.

And if the court is satisfied from the testimony that the Sanford invention is an improvement upon what had been

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before known, *that* is proof tending to establish the fact of novelty.

Birdsall v. McDonald, 6 O. G. 682.

Messrs. Frederick H. Betts and Causten Browne, for appellee :

The substantial identity of Lyman's structures with Sanford's must be conceded. The only points of difference are in details of construction affecting the degree of perfection of the working of the refrigerator, and all these are in favor of Lyman. These *improved forms* are, doubtless, patentable of themselves, but their presence does not affect the question of the essential similarity of Lyman's structure as a whole, or in part, to Sanford's invention.

Lyman filed an application for a patent in September, 1854, which application was rejected for insufficient reasons. The application was renewed December 1, 1855, and a patent granted March 18, 1856. While Lyman's application was pending in the office the patent of Sanford was granted without notice to him. The court below properly said :

"In view of that application, the patent of Sanford, of November, 1855, *ought not to have been granted.*

"The evidence shows that Lyman was the first inventor, as between him and Sanford, of what is claimed in Lyman's application of 1854, and of what is claimed in Sanford's patent of 1855, and of what is claimed in Lyman's patent of 1856."

In regard to the presumption of law that Lyman and Sanford's inventions are different from the fact that both have patents, need not be commented on except to say that after the Circuit Courts have three times decided that they were the *same*, the presumption would seem to be the other way.

Mr. Chief Justice WAITE delivered the opinion of the court:

In order that we may proceed intelligently in our inqui-

Opinion of the court.

ries as to the validity of the patent presented for our consideration in this case, it is important to ascertain at the outset what it is that has been patented.

Looking to the original patent, issued November 13. 1855, we find the invention is there described as consisting "Of an improvement in refrigerators, whereby the whole of the contained air is kept in continual rotation, purification, desiccation and refrigeration, and with economy of ice;" and that the inventor claimed and obtained a patent for "the arrangement set forth for causing the perpetual rotation of the whole of the air contained within the refrigerating apartments, said arrangement consisting, when the refrigerator is closed, of an endless passage or chamber, the walls, shelves and ice receptacle of which are so placed and constructed that the air is compelled to circulate through the entire apartment or apartments, and from which the water of the melting ice is discharged immediately from the refrigerator, instead of flowing between its walls." Mention is nowhere made in the specifications attached to this patent of any advantage which the descending current of air has over the ascending. The whole apparent object of the inventor was to produce a circulation of the confined air without the introduction of external air. The drawings exhibit shelves perforated so as to permit the passage of the air in its downward and upward progress; but the shelves seem only to be alluded to in the specifications, for the purpose of indicating the necessity of their perforation, or of some equivalent arrangement, so as to allow the free transit of the air. They appear as part of the refrigerator to be improved, and are in no respect necessary for the accomplishment of the object the inventor had in view. Being in the refrigerator, they are perforated, or otherwise so arranged as to permit the circulation which the inventor is attempting by his device to create. But for this, they would prevent or at least interfere with the accomplishment of his object. The shelves themselves form

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no part of his improvement ; but their perforation or its equivalent, when they are used, does.

In the reissued patent, the invention is described precisely the same as in the old ; and then the following is added : “ It is well known that mold will not generate in a current of air ; and it is known, that, when once formed, it propagates itself, and spreads with rapidity ; therefore, if any one part of the refrigerator be out of the direct course of the circulation, the air will stagnate there, and will develop mold, which will contaminate the whole apartment. The apartment D may vary in width, and it may be * * * so narrow as to serve merely as a passage for the ascending current of air, the greatest benefit being always derived from the downward current in apartment C.” This last paragraph certainly has much the appearance of an expansion of the original invention.

The claim, however, as made in the reissue, is materially changed from that in the old. It is capable of division into three parts, and may be stated as follows :

1. The employment of an open bottom ice box, or its equivalent, in combination with a dividing partition, open above and below, so placed that by means of self-operating internal circulation the whole of the contained air shall be kept in motion, and caused to revolve around the partition in currents, moving downward only on one side of this partition, and upward only on the other side, when the same is combined with a chamber for the refrigeration of food, etc., placed directly under the ice-box.

2. Placing shelves or fixtures for holding articles to be refrigerated, or the articles themselves, in the descending current, directly under an open bottom ice-box, in combination with a dividing partition open above and below.

3. The construction of the open bottom ice-box in combination with the shelves or fixtures in such manner that the air may pass freely down through the same, and fall

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directly from the ice upon the articles to be refrigerated, while at the same time the drip of the water is prevented.

The patent is, therefore, for a combination of three elements—to wit: 1. An open-bottom ice-box, or its equivalent, so constructed that the air may pass freely down through it, while at the same time the drip of the water from the melting ice is prevented by collecting the water, and taking it in an escape-pipe outside of the refrigerator; 2. A dividing partition, open above and below, separating the refrigerator into two apartments; and, 3. A chamber directly under the open-bottom ice-box, in which articles to be refrigerated may be placed in such manner as to receive the descending current of air from the ice-box directly upon them.

There is no doubt of the utility of this combination. If the patentee was its original and first inventor, the device was patentable to him.

It will be observed that no particular form of the opening in the bottom of the ice-box is essential. In fact, an equivalent may be used. It is so expressly stated. Any device which will allow of the passage of the cooled air out from among the ice, or cooling surfaces, into the chamber below, will come within the specifications. Hence the bottom may be in the form of a grate, or it may be constructed of bars running only longitudinally, or it may have one or many open spaces of any form. In this respect, all is left to the judgment of the builder. He may adopt any arrangement which he considers the best suited to the accomplishment of the object to be attained, which is the cooling of the air by the ice, and its discharge into the chamber below. Neither is there any special requirement as to the manner in which the water from the melted ice is to be collected and conducted outside the refrigerator. It is said in the specifications, that the bottom of the ice-box was made funnel-shape; but this was so that the water might be conducted to the central discharge, and from thence fall

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into the escape-pipe. This particular shape, however, is not made an essential ingredient. Any device that will collect the water in the discharge-pipe and prevent the drip will meet this requirement of the invention. So, too, of the escape-pipe; it may be of any desirable form. As little space as possible should be occupied, so that it may not obstruct the downward passage of the air; but even this is left as a matter of judgment alone.

Neither is any particular form of partition made essential. It need not even be vertical. All that is required is, that it shall be open at the top and bottom, and divide the refrigerator into two apartments. There are no specifications as to the size of the openings or their form, or as to the comparative size or form of the two apartments. It is said that the apartment for the ascending current may be so narrow, that it will serve only as a passage for the air; but there is nothing to prevent that for the descending current being narrow also, if the purposes of the refrigerator are such as to make that desirable. As the greatest benefit is generally to be derived from the use of the descending current, it is probable that this chamber will ordinarily be made as large as is consistent with a steady and continuous flow of the air; but, if a rapid descent is considered essential for any of the purposes of refrigeration, there is nothing to prevent a suitable contrivance for that purpose. If that can be accomplished by a larger chamber above leading into a smaller one below, for the purpose of concentrating the cold air current as it descends, a proper structure may be employed. If, in any place, the air descending from the ice-box can strike directly upon the articles to be refrigerated, the structure will be within the limits of the patent. It may be desirable to preserve the temperature at a lower degree until it strikes the article than it would be if permitted to remain in a chamber extending the whole size of the ice-box to the bottom of the refrigerator. In such case a proper contrivance for that purpose

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may be employed. Shelves or other fixtures for holding the articles to be refrigerated are not necessary, as the articles themselves may be placed in the descending current without the aid of any fixtures. But, if they were, their particular form is not specified. A nail driven into the wall of the chamber would be a fixture within the meaning of this call of the specifications. All the specifications do require is, that, if shelves or fixtures are used, they shall be so constructed or placed as to interfere as little as possible with the free passage of the air.

Such being the patent, we now proceed to consider the defense; which is, that the invention patented had been anticipated by Azel S. Lyman and others. Sanford, the patentee, does not carry his invention back of the summer of 1855, when, it perhaps sufficiently appears, his application was filed.

On the 21st September, 1854, Lyman filed his application for a patent for "A new and improved mode of cooling, drying and disinfecting air for ventilators and refrigerators." His improvement in refrigerators consisted "In so arranging them, that, as fast as the air became warm and moist and impure by contact with the meat, it is drawn off and passed through the material, where it is cooled, dried and disinfected, and then returned to use again in the refrigerator, collecting moisture and impurities, which it deposits in the receptacle intended for that purpose; thus keeping up a full circulation, and thoroughly ventilating the refrigerator with dry, pure, cold air."

His device consisted of a receptacle for ice, with a grate for its bottom, on which the ice rested. This receptacle was placed in the upper part of the refrigerator, and on one side. Below it was a cold-air chamber, into which the air flowed from the ice through the grate. The water from the melting ice was collected in this chamber, and conducted by a pipe to the outside of the refrigerator. From the cold air chamber was a conduit leading downwards, but

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which did not extend to the bottom of the refrigerator. At the top of the ice receptacle, and on its side, was an opening into the refrigerator. The operation Lyman described to be as follows :

“The receptacle being filled with fragments of ice, the air among this ice will be cooled and, becoming more dense, will settle down through the grate into the cold-air chamber ; thence down the conduit ; and, so long as the air in the ice is colder and heavier than that in the refrigerator, it will continue to fall down the conduit, mingling with the lower strata, and forcing the upper strata or warmest air through the opening into the ice receptacle. When the the air comes in contact with the cold surfaces of the ice, its capacity for moisture is lessened, and the moisture is deposited on the ice. By this arrangement of the ice receptacle in the upper part of the refrigerator, with an opening for receiving air in its upper part, and a grate in the lower part on which the ice rests, a cold-air chamber below the grate and a descending conduit from this cold-air chamber, or with an arrangement of parts substantially the same, so that the air shall be caused to circulate rapidly from bottom to top in the refrigerating chamber, and from top to bottom in the separate combinations as described, the air is not only cooled, but it is, by being frequently passed through the interstices of the ice, thoroughly dried, and it is washed as by a hail-storm ; a decided improvement in its smell is effected ; and the apparatus becomes not only cooling and drying, but, to some extent, a disinfecting apparatus.”

He then claimed as his invention “The combination of the reservoir of cooling, drying and disinfecting material with the descending tube or conduit, so that the cold and condensed air in this conduit shall, on account of its increased weight, cause the warmer air to pass more rapidly through the material, where it is cooled, dried and disinfecting, and in its turn falls down the conduit, being by its

Opinion of the court.

sides kept separate from the other air until it mingles with the lower strata, substantially as described for the purposes aforesaid."

There was, therefore, in this invention of Lyman, the open-bottom ice-box and the partition open above and below, dividing the refrigerator into two apartments, in one of which the air passed downward only, and in the other upward only. This constituted all there was of the "endless passage or chamber" in the original Sanford patent, "so constructed that the air is compelled to circulate through the entire apartment or apartments." True, the partition was not vertical; and the apartments need not be of equal or of any particular proportionate size. Neither was this necessary, as has been seen in the Sanford patent. Each, however, called for the circulation of air, and each obtained it substantially by the same device. They each passed the air cooled in the ice-box through convenient openings downwards in one apartment, and upwards through the other. In each device, the cooled air passed through the opening in the bottom of the partition, and the warmed air through that in the top. All this was done in both cases for the purpose of cooling, desiccating, and purifying the confined air, and to prepare it for the purposes of refrigeration. There was, therefore, one common object to be accomplished by both the inventors; and they each devised substantially the same plan for that purpose.

Undoubtedly, Lyman expected to use the ascending air principally for the purposes of refrigeration, and he therefore supposed the greatest benefit would be derived from that current; but there was nothing in his specifications to prevent the use of the descending air, or from so constructing his refrigerator as to make that available. If it should be thought advisable to extend the size of the chamber for the descending air, there was nothing to prevent it. It would still operate as a conduit in which the cold air would

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fall down and be kept separate by the sides from the other air until it mingled with the lower strata.

It being, then, certain that Lyman contrived a machine which would produce the desired circulation, and could be used for refrigeration in the ascending current, it remains only to consider, whether, if one desired to make use of the descending current for the same purpose, he could claim such use as a new invention.

It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not.

Lyman had the descending current. True, he concentrated the air as it fell, and sent it downwards through a space smaller than that which would be contained in a chamber extending the full size of the bottom of the ice-box to the bottom of the refrigerator; but he did have a space large enough to expose in it some articles to the effect of that current. If it should be found desirable to utilize that current to a greater extent than was at first contemplated, all that need be done is to enlarge the conduit. If the circulation is kept up, the device will be within the specifications. In fact, the proof is abundant, that in his experiments, while perfecting his invention, Lyman did, in more cases than one, utilize the descending current. With both the inventors, the circulation by means of an ascending and descending current was the principal object to be obtained. One considered the greatest benefit for the purposes of refrigeration was to be derived from the use of the descending current, while the other had his attention directed more particularly to the advantages of the ascending. They each had both, and could utilize both. It is no invention, therefore, to make use of one rather than the other.

Lyman had conceived the idea of his invention as early as August 19, 1852; for he then filed his *caveat* in the Pat-

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ent Office. His ideas were, at that time, undoubtedly crude; but it is clear that he kept steadily at his work. He built many refrigerators upon his general plan; and, in some at least, the descending current was made use of. A part had shelves arranged in such a manner as to expose the articles in that current and in some the articles were placed on the bottom of the refrigerator, immediately under the outlet of the conduit. In some the conduit was large, and in others it was small. The size was made in all cases to depend upon the judgment of the builder, and the purposes to which the machine, when completed, was to be applied.

As has been seen, Lyman, after having, as he thought, perfected his invention, applied for his patent, September 21, 1854. Technical objections were made; and on the 19th April, 1855, he withdrew the application. He, however, still kept up his correspondence with the Department, vigorously pushing his claim. On the 28th November, 1855, only thirteen days after the grant of the patent to Sanford, he filed a new application and, in doing so, distinctly connected it with the first. There certainly is no material difference between the old and the new. On the 25th March, 1856, a patent was in due form issued to him.

Down to this time it is impossible to discover any material difference between the two patented inventions. Clearly Lyman was the oldest inventor, and his patent was, consequently, the best, although that of Sanford antedated his. His last application was rejected December 5, because it had been anticipated by Sanford; but afterwards the subject was reconsidered, and a patent issued to him.

After this grant of a patent to Lyman, Sanford surrendered his original patent, and obtained his reissue upon the amended specifications and claim. These have already been stated. All that can possibly be claimed for this amendment is a combination of the use of the descending current with the device for the circulation. There was no

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change in the machine: it was only put to a new use. If there was any change of construction suggested, it was only to increase its capacity for usefulness. It was "A mere carrying forward or new or more extended application of the original thought, a change only in form, proportions or degree, doing substantially the same thing in the same way, by substantially the same means, with better results." This is not such an invention as will sustain a patent. We so decided no longer ago than the last term, in *Smith v. Nichols*, 21 Wall. 112 [9 Am. & Eng. 425]. Clearly, we think, therefore, the invention of Sanford was anticipated by Lyman; and his patent is, on that account, void.

We have been cited to the case of *Roberts v. Harnden*, 2 Cliff. 500, decided by Mr. Justice Clifford, upon the circuit, as an authority against the view we have taken. In that case, the same construction substantially was given to the patent that we give to it here. We place our decision upon the facts shown to us. We think the evidence establishes, beyond all question, that Lyman, and not Sanford, was the original and first inventor of all there is of this improvement. In that case the court said "that the respondent had not introduced any satisfactory evidence tending to show that the patentee (Sanford) is not the original and first inventor of the improvement." What was submitted to that court we do not know. The report of the case does not contain the evidence, or any intimation of what it was.

Upon the evidence submitted to us, we think a clear case is made in favor of the defendants, and that the bill was properly dismissed.

The decree of the Circuit Court is affirmed.

91 U. S. 159.

Notes:

1. Double use. See

Brown v. Piper, 91 U. S. 37, note 1 [p. 272, *ante*].

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2. Inventor's right to the uses of his invention :

Stow v. City of Chicago, 104 U. S. 547.

Heald v. Rice, 104 U. S. 737.

3. The mere carrying forward of an old idea is not invention :

Smith v. Nichols, 21 Wall. 112 [9 Am. & Eng. 425].

Patent in Suit :

No. 13,802. Sanford, D. W. C. November 13, 1855.

Reissue No. 455. April 21, 1857. Refrigerator.

OTHER SUITS ON SAME PATENT :

Roberts v. Harnden, 1865. 2 Cliff. 500.

Roberts v. Buck, 1873. 1 Holmes, 224; 6 Fish. 325; 3 O. G. 268.

Roberts v. Blake, 1873. 1 Holmes, 244.

Roberts v. Ryer, 1873. 11 Blatch. 11; 6 Fish. 293; 3 O. G. 551.

Roberts v. Buck, 1875. 91 U. S. 159 [p. 335 post].

Cited :**IN SUPREME COURT IN :**

Pennsylvania R. R. Co. v. Locom. Truck Co., 1884. 110 U. S. 490; Bk. 28 L. ed. 222.

Eachus v. Broomall, 1885. 115 U. S. 429; Bk. 29 L. ed. 419.

Notes and Citations.

IN CIRCUIT COURTS IN:

- Gottfried v. Phillip Best Brewing Co., December, 1879. 5 Ban. & Ard. 4.
- Tinker v. Wilber Eureka Mower & Reaper Mnfg. Co., January, 1880. 1 Fed. Rep. 138; 5 Ban. & Ard. 92; 9 Rep. 273.
- Warth v. Browning, April, 1880. 5 Ban. & Ard. 341; 17 O. G. 624.
- Smith v. Merriam, January, 1881. 6 Fed. Rep. 713; 11 Reporter, 729; 19 O. G. 601.
- Gottfried v. Crescent Brewing Co., January, 1881. 9 Fed. Rep. 762; 22 O. G. 497.
- Sawyer v. Miller, May, 1882. 4 Woods, 472; 12 Fed. Rep. 725.
- New Process Fermentation Co. v. Koch, May, 1884. 21 Fed. Rep. 580.
- Cottier v. Stimson, August, 1884. 10 Sawy. 212; 20 Fed. Rep. 906.
- Odell v. Stout, October, 1884. 22 Fed. Rep. 159; 29 O. G. 862.
- New York Bung & Bushing Co. v. Doelger, March, 1885. 23 Blatch. 167; 23 Fed. Rep. 191; 32 O. G. 651.
- Thompson v. Gildersleeve, February, 1888. 34 Fed. Rep. 43; 43 O. G. 886.
- Thompson v. American Bank Note Co., June, 1888. 35 Fed. Rep. 203.
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IN STATE COURTS IN :

- Burke v. Partridge. June, 1878. 58 N. H. Rep. 349; 10 Rep. 310.
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IN TEXT-BOOKS :

- 2 Abb. Pat. Law., 1886. pp. 40, 41.
- Merwin on Pat. Invt., 1883. pp. 105, 151, 285.
- Walker on Pats., 1883. pp. 29, 129.
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Notes and Citations.

GEORGE C. ROBERTS v. JOSEPH BUCK, JR.*

91 (1 Otto) U. S. 150. Oct. Term, 1875.

[Bk. 23, L. ed. 271.]

Affirming *Ibid*, 1 Holmes, 224.

Argued April 21, 22, 1875. Decided December 13, 1875.

1. The reasons stated in *Roberts v. Ryer*, 91 U. S. 150 [p. 302 *ante*] dispose of this case, the questions presented in the two cases being substantially the same.

Appeal from the Circuit court for the District of Massachusetts.

[Argued by same counsel in connection with the preceding case and decided at same term.]

The decree of the Circuit Court in this case is affirmed for the reasons stated in the opinion just read. The questions presented in the two cases are substantially the same.

91 U. S. 150.

Patent in suit:

No. 13,802. Sanford, D. W. C. November 13, 1855.

Reissue No. 455. April 21, 1857. Refrigerator.

OTHER SUITS ON SAME PATENT:

See list given in *Roberts v. Ryer*, 91 U. S. 150 [p. 332 *ante*.]

*See Explanation of Notes, page III.

Syllabus.

RUFUS K. SEWALL, ADMINISTRATOR OF HENRY CLARK,
DECEASED, APPELLANT, v. JOHN WINSLOW
JONES ET AL.*

91 (1 Otto) U. S. 171-199. Oct. Term, 1875.

[Bk. 23, L. ed. 275; 9 O. G. 47.]

Reversing *Ibid*, 3 Cliff. 563.

Argued November 19, 1875. Decided December 13, 1875.

First inventor. Particular patents construed. Infringement. Construction of specification. Sufficiency of specification. Novelty.

1. To entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in respect to the United States, but to other parts of the world. Even if he did not know that the discovery had been made before, still he cannot recover if it had been in use or described in public prints, and if he be not in truth the original inventor. (p. 346.)
2. Letters patent No. 34,928. I. Winslow, April 8, 1862, Canning Green Corn for an article of manufacture, *held* wanting in novelty in view of Durand's English patent No. 3,372 of 1810. (p. 348.)
3. The double use of the word "about" indicates that time is not to be considered as precisely specified. (p. 350.)
4. To constitute an infringement, the thing used by the defendant must be such as substantially to embody the patentee's mode of operation, and thereby to attain the same kind of result, as was reached by his invention. The result need not be the same in degree. (p. 351.)
5. The omission to mention in the specification something which contributes only to the degree of benefit, providing the apparatus would work beneficially and be worth adopting without it, is not fatal, while the omission of what is known to be necessary to the enjoyment of the invention is fatal. (p. 353.)

*See Explanation of Notes, page III.

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6. When the inventor says, "I recommend the following method," he does not thereby constitute such method a portion of his patent. His patent may be infringed although the party does not follow his recommendation, but accomplishes the same end by another method. (p. 354.)
7. Letters patent No. 35,274. I. Winslow, May 13, 1862, Preserving Corn, for the process *held* wanting in novelty in view of English patent No. 3,372 to Durand of 1810. (p. 355.)

[Citations in opinion of the court:]

Dawson v. Follen, 2 Wash. 311. p. 347.
Bedford v. Hunt, 1 Mas. 302. p. 347.
Winans v. Denmead, 15 How. 330 [6 Am. & Eng. 107]. p. 351.
Root v. Ball, 4 McLean, 177. p. 351.
Alden v. Dewey, 1 Story, 336. p. 351.
Howe v. Abbott, 2 Story, 190. p. 351.
Parker v. Haworth, 4 McLean, 370. p. 351.
Curtis, sec. 312. p. 351.
Walton v. Potter, Web. Pat. Cas. 585. p. 352.
Curtis, secs. 248, 250. p. 352.

[In dissenting opinion:]

Rubber Co. v. Goodyear, 9 Wall. 788 [8 Am. & Eng. 150]. p. 358.
Rubber Co. v. Goodyear, 2 Cliff. 351. p. 358.
Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290]. p. 358.
Goodyear v. Railroad Co., 2 Wall., Jr. 356. p. 358.
Curtis Pats. (4th ed.), secs. 269, 327. p. 358.

Appeal from the Circuit Court of the United States for the District of Maine.

The case is stated by the court.

The specifications and drawings of the Winslow patents and of Durand's English patent are as follows:

ISAAC WINSLOW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN W. JONES, OF PORTLAND, MAINE.

IMPROVED INDIAN CORN PRESERVED GREEN.

Specification forming part of Letters Patent No. 34,928, dated April 8, 1862.

To all whom it may concern:

Be it known that I, Isaac Winslow, of Philadelphia, in

Statement of the case.

the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Preserved Indian Corn in the Green State; and I do hereby declare that the following is a full and exact description thereof:

In my first attempt to preserve Indian corn in the green state without drying the same I did not remove the kernels from the cob. The article thus obtained was very bulky, and when used the peculiar sweetness was lost, the same being absorbed, as I suppose, by the cob. After a great variety of experiments, I have overcome the difficulties of preserving Indian corn in the green state without drying the same, thus retaining the milk and other juices and the full flavor of fresh green corn until the latter is desired for use. Instead of a hard, insipid, or otherwise unpalatable article, I have finally succeeded in producing an entirely satisfactory article of manufacture, in which my invention consists.

I have employed several methods of treatment of the green corn with good results. My first success was obtained by the following process: The kernels, being removed from the cob, were immediately packed in cans and the latter hermetically sealed, so as to prevent the escape of the natural aroma of the corn or the evaporation of the milk or other juices of the same. Then I submitted the sealed cans and their contents to boiling or steam heat about four hours. In this way the milk and other juices of the corn are coagulated as far as may be by boiling, thus preventing the putrefaction of these more easily destructible constituents. At the same time the milk and other juices are neither diluted nor washed away, as would be more or less the case if the kernels were mixed with water and boiled. By this method of cooking green corn in the vapor of its juices, as it were, the ends of the sealed cans are bulged out, as though putrefaction and the escape of resultant gases had commenced within the cans. Consequently strong cans are required, and dealers are likely to be prejudiced against corn thus put up.

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I recommend the following method: Select a superior quality of sweet corn in the green state, and remove the kernels from the cob by means of a curved and gaged knife, or other suitable means. Then pack these kernels in cans and hermetically seal the latter, so as to prevent evaporation under heat, or the escape of the aroma of the corn. Now, expose these cans of corn to steam or boiling heat for about one hour and a half. Then puncture the cans and immediately seal the same while hot, and continue the heat for about two hours and a half longer. Afterward the cans may be slowly cooled in a room at the temperature of 70° to 100° Fahrenheit.

Indian corn thus packed and treated may be warranted to keep in any climate. Being preserved in its natural state as near as possible, it retains the peculiar sweetness and flavor of fresh corn right from the growing field. It is only necessary to heat this preserved corn and season the same, in order to prepare it for the table, as it is fully cooked in process of preserving.

Other modes of treatment may be adopted without departing from my invention so long as the hermetical sealing and the use of heat are so managed as to secure the aroma and fresh flavor and prevent putrefaction, thus producing the new article of manufacture, substantially as described.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The above-described new article of manufacture—namely, Indian corn—when preserved in a green state without drying the same, the kernels being removed from the cob, hermetically sealed, and heated, substantially in the manner and for the purposes set forth.

ISAAC WINSLOW.

Witnesses:

WM. HINKLE,
WILLIAMS OGLE.

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ISAAC WINSLOW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN W. JONES, OF PORTLAND, MAINE.

IMPROVEMENT IN PRESERVING GREEN CORN.

Specification forming part of Letters Patent No. 35,274, dated May 13, 1862.

To all whom it may concern :

Be it known that I, Isaac Winslow, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Preserving Green Corn; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

It has long been common to boil green or unripened Indian corn or maize and then dry the same for winter use; but corn thus dried, when prepared for the table by again boiling, is more or less hard and insipid, having lost the fine flavor of fresh green corn. If ears of corn be boiled and then hermetically sealed in cans, the cob seems to absorb the sweetness of the kernels; or if the kernels are removed from the cob after boiling and then preserved the finest flavor of the natural corn is lost.

After many and varied attempts to preserve green corn without drying the same, finding that I did not obtain a satisfactory result, I finally conceived the idea of first removing the corn from the cob and then boiling or cooking the kernels thus separated and preserving them; but this was met by a new difficulty. The kernels of corn being somewhat broken by removal from the cob, the milk and other juices were dissolved out in the process of boiling, and thus the corn was left insipid and unpalatable. I then attempted to cook the corn without contact with water by exposing the cans containing the corn to boiling water. This mode of preserving I found unsatisfactory. The milk

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of the corn was evaporated and the corn more or less dried, while a long time was requisite to cook the corn sufficiently for preservation. Finally, I adopted the process of removing the corn from the cob, packing the kernels in cans hermetically sealing the same, and then boiling the cans until the corn therein contained became completely cooked. The result of this process was extraordinary, the corn being of finer flavor than corn fresh from the field when boiled upon the cob in the usual way. Since this discovery I have adopted the practice of boiling or steaming the cans containing the corn-kernels, thus sealed, about four hours, though a shorter time may answer for most purposes. The cans should be very strong, so as to prevent their bursting by heat. I have sometimes practiced puncturing the cans after they are well heated—say for ten minutes. This allows the air to escape, when I immediately reseal the cans, so as to prevent the evaporation of the corn or the loss of the natural aroma. This puncturing has two advantages. It prevents the possible bursting of the cans and allows the heads of the cans to press inward when cool, so that dealers can see by this test that the corn is perfectly preserved. When the cans are not punctured, their ends will remain pressed outward after cooling, and yet the corn is perfectly preserved.

The above-described process of removing the corn from the cob and then preserving the kernels affords several advantages over any method of preserving corn heretofore known. Among these advantages are the following: First, the peculiar sweetness and excellent flavor of the corn thus preserved, these qualities being consequent upon retaining all the milk and other juices, together with its fine natural aroma; second, the economy of space in boiling and packing and convenience of handling, transportation, and sale.

Having thus fully described my improved process, what I claim, and desire to secure by Letters Patent of the United States, is—

The above described process of first removing the corn

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from the cob and then preserving the kernels, substantially in the manner and for the purposes set forth.

ISAAC WINSLOW.

Witnesses:

SAMUEL C. OGLE,
WILLIAMS OGLE.

PRESERVING ANIMAL AND VEGETABLE FOOD.

To all to whom these presents shall come, I, Peter Durand, of Hoxton Square, in the county of Middlesex, Merchant, send greeting:

Whereas His most Excellent Majesty King George the Third did, by His Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the twenty-fifth day of August, in the fiftieth year of His reign, give and grant unto me, the said Peter Durand, executors, administrators, and assigns, His special license, full power, sole privilege and authority, that I, the said Peter Durand, my executors, administrators, and assigns during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, an Invention communicated to him by a certain foreigner residing abroad, of the Method of "Preserving Animal Food, Vegetable Food, and other Perishable Articles a long time from perishing or becoming useless;" in which said Letters Patent there is contained a proviso obliging me, the said Peter Durand, by an instrument in writing under my hand and seal, to cause a particular description of the nature of the said Invention, and in what manner the same is to be performed, to be enrolled in His Majesty's High Court of Chancery within six calendar months after the date of the said recited Letters Patent, as in and by the same relation being thereunto had, may more fully and at large appear.

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Now know ye, that in compliance with the said proviso, I, the said Peter Durand, do hereby declare that the nature of the said Invention, and the manner in which the same is to be performed, are particularly described and ascertained as follows, that is to say:—First, I place and inclose the said food or articles in bottles or other vessels of glass, pottery, tin, or other metals or fit materials; and I do close the aperture of such containing vessels so as completely to cut off and exclude all communication with the external air; and as to the method of closing, I do avail myself of the usual means of corking, airing, luting, or cementing and in large vessels I make use of corks formed of pieces glued together in such a manner as that the pores of that substance shall be in a cross direction with regard to the aperture into which such corks are to be driven; and I do also in such vessels as may admit of or require the same, make use of stoppers fitted or ground with emery, or screw caps with or without a ring of leather or other soft substance between the faces of closure, and also of corks or cross plugs or covers of leather, cloth, parchment, bladder, and the like.

Secondly, When the vessels have been thus charged and well closed, I do place them in a boiler, each separately surrounded with straw or wrapped in coarse cloth, or otherwise defended from striking against each other, and I fill the said boiler so as to cover the vessels with cold water, which I gradually heat to boiling, and continue the ebullition for a certain time, which must depend upon the nature of the substances included in the vessels, and the size of the said vessels, and other obvious circumstances which will be easily apprehended by the operator without farther instruction. Vegetable substances are to be put into the vessel in the raw or crude state, and animal substances partly or half cooked, although these may also be put in raw. The food or other articles thus prepared may be kept for a very long time in a state fit for use, care being taken that the vessel shall not be opened until their said contents

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shall be wanted for consumption. And, lastly, I do declare, that although the application of the water-bath, as hereinbefore described, may be the most commodious and convenient, I do likewise avail myself of the application of heat by placing the said vessels in an oven, or a stove, or a steam-bath, or any other fit situation for gradually and uniformly raising the temperature of the same, and suffering them to cool again; and farther, that I do, as the choice of the consumer or the nature of the said food or other article may render preferable, leave the aperture of the vessel, or a small portion thereof open until the effect of the heat shall have taken place at which period I close the same.

In witness whereof, I, the said Peter Durand, have hereunto set my hand and seal, this thirtieth day of August, in the year of our Lord one thousand eight hundred and ten.

PETER DURAND, [L. s.]

And be it remembered, That on the thirtieth day of August, in the year of our Lord 1810, the aforesaid Peter Durand came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stampt according to the tenor of the statute made for that purpose.

Inrolled the thirtieth day of August, in the year of our Lord one thousand eight hundred and ten.

Messrs. E. N. Dickerson and R. K. Sewall for appellant:

(After a lengthy argument upon the point that the inventor had known of and allowed prior public use and sale of his invention, they continued).

We submit that the Durand patent gave to the public the right to use the process therein described for all kinds of vegetable and animal substances, and that no man could subsequently deprive the public of that right, by selecting

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some one variety of animal or vegetable matter, and without performing any process upon it which was not well known before, patenting the application of the Appert process to it.

It is not an *invention* to separate the edible portion of the vegetable from the husks, before it is subjected to the process, when the object is, as Appert's was, to *preserve food*. Durand's patent does not contemplate the preservation of the pods of peas, or the husks of grain; and it is not the subject of a patent, to inform the world that only the edible parts of vegetables are to be preserved by that process.

Mr. Wm. Henry Clifford, for appellees:

Under the process described by Durand, and generally distinguished by the title of the Appert process, meats, fish and vegetables have long been preserved in England and in France; but the art was not known or practiced in this country in any way till subsequent to the date of Winslow's invention relating to green corn.

The Appert process, however, was wholly unsuited to so delicate an article as green corn. The entire absence, in these patents, of the necessary details which are absolutely indispensable to the preservation of green corn, not only prove that following these specifications corn could not be preserved, but also that the patentees never had the article in mind.

Prof. Hayes says: "The whole success in preserving sweet corn depends upon the cutting open, or breaking of the kernels, before they are put into the cans for cooking; and I consider this as the distinguishing feature, and one of the most essential parts of the Winslow process. But in the Durand patent this important part of the process has been entirely overlooked.

Upon the question of the validity or the infringement of these patents, the fact whether a person has preserved or can preserve green corn by a sort of preliminary heating in

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an open vessel, or a partially opened one, has no pertainancy whatever, so long as it is conceded that the *new preparatory and indispensable step prescribed by these patents is followed*.

It is a noticeable fact, that, at or about the time of Isaac Winslow's invention, there is no proof of the existence of any such merchantable article as preserved green corn, by whatever process preserved; that immediately after the filing of Winslow's application, March, 1853, an extensive commerce in this article began, and has gone on increasing until it now amounts to many millions of cans per annum.

Mr. Justice HUNT delivered the opinion of the court:

Jones, as assignee of four several patents for a new and useful improvement in preserving Indian corn, brought his action against Clark, the original defendant, alleging infringements of the same. These patents were issued to Isaac Winslow, and were as follows, viz: No. 34,928, dated April 8, 1862, "for a new and useful improvement in preserving Indian corn;" No. 35,274, dated May 13, 1862, "for a new and useful improvement in preserving green corn;" No. 35,346, dated May 20, 1862, and No. 36,326, dated August 26, 1862.

The two patents last above mentioned were declared and adjudged by the court below to be void; and from this judgment no appeal has been taken. They are no longer elements in the case before us, and are dismissed from further consideration.

The patent first mentioned is for an article of manufacture—a result. The second one is for a process by which a result is obtained. The first is the more full, and embraces all that is contained in the second.

The first objection made to the patents is the want of novelty. It is contended that they were anticipated by the Appert process embodied in the Durand patent of 1810; also by the patent of Gunter of 1841, and by that of Wert-

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heimer of 1842. It is an elementary proposition in patent law, that, to entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in relation to the United States, but to other parts of the world. Even if the plaintiff did not know that the discovery had been made before, still he cannot recover if it has been in use or described in public prints, and if he be not in truth the original inventor. *Dawson v. Follen*, 2 Wash. C. C., 311; *Bedford v. Hunt*, 1 Mas. 302.

Durand's patent is described in his specification, enrolled in the English Court of Chancery, as based "Upon an invention communicated to him by a certain foreigner, residing abroad, of the manner of preserving animal food, vegetable food and other perishable articles a long time from perishing or becoming useless."

In describing the nature of the invention and the manner in which the same is to be performed, he says:

"First. I place the said food or articles in bottles of glass, pottery, tin or other metals or fit materials, and I close the aperture so as completely to cut off or exclude all communication with the external air;" and he describes the various means of effecting that purpose.

"Second. When the vessels are thus charged and well closed, I place them in a boiler, each separately surrounded with straw or wrapped in a coarse cloth, or otherwise defended from striking against each other. I fill the boiler so as to cover the vessels with cold water, which I gradually heat to boiling, and continue the ebullition for a certain time, which must depend upon the nature of the substances included in the vessels and the size of the vessels, and other obvious circumstances which will be readily apprehended by the operator. Vegetable substances are to be put into the vessel in a raw or crude state, and animal substances partly or half cooked, although these may also be put in raw."

The specification then declares that the inventor did

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avail himself of the application of heat by placing the vessel in an oven, stove, steam-bath or other fit situation for gradually and uniformly raising the temperature and suffering it to cool again, and that as the choice of the consumer or nature of the said food or other articles may render preferable, leave the aperture of the vessel, or a small portion thereof, open until the effect of the heat shall have taken place, at which period the same is to be closed.

The points following are embraced in this patent:

1. It is for the purpose of preserving for a long time animal or vegetable food.

2. The articles thus to be preserved are to be placed in tin or other vessels, so arranged as to exclude communication with the external air.

3. An aperture may be left in the vessel, at the choice of the operator, until the effect of the heat shall have taken place, when it is to be closed.

4. The vessels thus prepared are placed in a boiler filled with cold water, which is heated to a boiling point, which boiling shall be continued for such time as shall be required by the substances contained in the vessels.

5. Although a water bath is preferred, the inventor declares that he avails himself of heat through an oven, stove, steam-bath or any other situation fit for gradually raising the temperature and suffering it to cool again.

6. Vegetables are to be put into the vessels in a raw or crude state; animal substances raw or partly cooked.

7. The invention is general in its terms, embracing all vegetables and all animal substances capable of being thus dealt with.

Winslow's patent of April 8, 1862, No. 34,928, is declared to be for an improvement in preserving Indian corn in the green state.

The letters patent declare that the first "Success of the inventor was obtained by the following process: the kernels, being removed from the cob, were immediately packed

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in cans hermetically sealed, so as to prevent the escape of the natural aroma of the corn or the evaporation of the milk or other juices of the same. I then submitted the sealed cans and their contents to boiling or steam heat for about four hours. * * * By this method of cooking green corn in the vapor of its juices, the ends of the cans are bulged out. Strong cans are required, and dealers are likely to be prejudiced against corn thus put up. I recommend the following method: Select a superior quality of green corn in the natural state; remove the kernels from the cob by means of a curved and gauged knife, or other suitable means; then pack in cans, hermetically seal the cans, expose them to steam or boiling heat for about an hour and a half; then puncture, seal while hot and continue the heat for about two hours and a half." At the close, the inventor says that what he claims to secure by the patent is the new article of manufacture, namely: Indian corn preserved in the green state without drying, the kernels being removed from the cob, hermetically sealed, and heated as described.

Let us now state the points embraced in this, the plaintiff's patent, and compare them with the points heretofore stated as included in the Durand patent.

1. Winslow's declared object is the preservation of Indian corn in the green state.

Durand's is for preserving Indian corn not only, but all vegetable substances in their raw or crude state.

2. Winslow recommends removing the kernels from the cob before the process of preservation is commenced, placing the kernels in cans, sealing them and exposing them to heat.

Durand, not limiting himself to the article of corn, provides that the articles to be preserved shall be placed in cans, and subjected to heat in the same manner. He does not stipulate or recommend that the article shall be first removed from the cob, the vine, the twig, or whatever may

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be the natural support of the vegetable to be preserved, as the corn from the cob, the pea from its pod, the grape or the tomato from its vine, the peach from its stem, the berry from its stalk. Neither does he recommend that it shall not be so removed. His process embraces the article in whatever form it may be presented. It is for the preservation of raw or crude or uncooked vegetables in whatever form they may be presented, and necessarily includes a case where they have been previously removed from their natural support. A prior removal from the stalk would be the natural and, in many cases a necessary proceeding.

3. Winslow directs that the kernels shall be subjected to the heat for a period of about one and a half hours before puncturing, and for about two and a half hours after the puncturing. The double use of the word "about" indicates that the time is not to be considered as precisely specified.

Durand directs that the boiling shall continue for such length of time as shall be required by the particular substances contained in the vessel. Corn, peas, tomatoes, peaches, berries, asparagus, may very likely require great difference in the time in which the heat shall be applied to produce the required effect. In each case, that is to be the measure of the time.

4. Winslow says other modes may be adopted so long as hermetical sealing and the use of heat are so managed as to secure the aroma and fresh flavor and prevent putrefaction.

Durand declares that he intends to include in his patent, heat through an oven, stove, steam or any other situation by which the temperature is gradually raised and suffered to cool again.

The same idea is put forth at the close of Winslow's specification, where he declares that what he claims by his patent is the manufacture of Indian corn in its green state, the kernels being removed from the cob, hermetically sealed and heated.

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We are of the opinion that the substance of all that is found in Winslow's patent had, nearly half a century before he obtained his patent, been put forth in Durand's patent. If Durand's patent were now in force in this country, and a suit brought upon it against Jones, the claimant under Winslow, for an infringement, the right to recover could not be resisted. Durand would show a patent intended to effect the same purpose—to wit: the preservation of vegetables for a long time; employing the same process—to wit: the effect of heat upon vegetables placed in a metallic vessel, the gradual cooling of the same, hermetically sealed after puncture to allow the escape of gases. This is also Winslow's process.

To constitute an infringement, the thing used by the defendant must be such as substantially to embody the patentee's mode of operation, and thereby to attain the same kind of result as was reached by his invention. It is not necessary that the defendant should employ the plaintiff's invention to as good advantage as he employed it, or that the result should be the the same in degree; but it must be the same in kind. *Winans v. Denmead*, 15 How. 330 [6 Am. & Eng. 107].

To infringe a patent, it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants, they are guilty of infringement. *Root v. Ball*, 4 McLean, 177; *Alden v. Dewey*, 1 Story, 336.

In an action for infringement, the first question is, whether the machine used by the defendant is substantially, in its principle and mode of operation, like the plaintiff's. If so, it is an infringement to use it. *Howe v. Abbott*, 2 Story, 190; *Parker v. Haworth*, 4 McLean, 370.

If he has taken the same plan and applied it to the same purpose, notwithstanding he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee. *Curtis*, sec. 312.

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Erskine, J., says, in *Walton v. Potter*, Web. Pat. Cas. 585, 607 [3 Am. & Eng. 162], the question of infringement depends upon whether the plan which the defendant has employed is in substance the same as the plaintiff's and whether all the differences which have been introduced are not differences in circumstances not material, and whether it is not in substance and effect a colorable evasion of the plaintiff's patent.

When a party has invented some mode of carrying into effect a law of natural science or a rule of practice, it is the application of that law or rule which constitutes the peculiar feature of the invention. He is entitled to protect himself from all other modes of making the same application; and every question of infringement will present the question, whether the different mode, be it better or worse, is in substance an application of the same principle. Curtis, sec. 320.

It is said, however, that a distinction exists in this: that Winslow's patent provides that the corn shall be removed from the cob before the process begins, and that Durand does not specify this idea. If this be conceded, it does not alter the case. Although he may preserve Indian corn by removing it from the cob more advantageously than by letting it remain on the cob, he does it by using the Durand process. He still applies Durand's process of heating, puncturing and cooling, and no more takes the practice out of Durand's patent than if he should specify that pears or peaches would be the better preserved if their outer coating should be first removed, or that meat could the better be preserved if the bones were previously (a) removed. Whether the improvement or combination could be the subject of a patent, it is not material to consider.

It is said again, that "instead of packing the kernels in the vessels selected for the purpose, in their crude state, as suggested in the English patent, the process patented by

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(a) Otto substitutes "extracted" for "removed."

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the assignor of the plaintiff directs that the kernels should be cut from the cob in a way which leaves a large part of the hull on the cob, and breaks open the kernels, liberating the juices, to use the language of the patentee, and causing the milk and other juices of the corn to flow out and surround the kernels as they are packed in the cans, in such a mode that the juices form the liquid in which the whole is cooked, when the cans are subjected to the bath of boiling water."

This argument is based upon an error in fact. There is no such language in the patent. The sole expression of the patent is to provide, first, that the corn shall be removed from the cob; and, second, that it shall be subjected to heat in vessels hermetically sealed. Thus, Winslow recites that difficulty had been encountered by him in preserving the corn upon the cob. This produced an insipid article; and accordingly he says, "My first success was obtained by the following process: the kernels, being removed from the cob, were immediately packed in cans and hermetically sealed, so as to prevent the escape of the aroma, and submitted to heat," etc. There is not a word in the patent to the effect that the kernels shall be cut off in a particular way, or that a large part of the hull shall be left on the cob; nor, indeed, that the kernels shall be cut off at all. It is simply provided that the corn shall be removed from the cob. The means are not specified.

Farther on, the patentee, Winslow, says: "I recommend the following method." This is not of the substance of the patent. A recommendation is quite different from a requirement. The latter is a demand, an essential, a necessity. The former is a choice or preference between different modes or subjects, and is left to the pleasure or the judgment of the operator. He may adopt it. He will do well if he does. But he may reject it, and still accomplish his object by means of the patent.

The principle is this: the omission to mention in the

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specification something which contributes only to the degree of benefit, providing the apparatus would work beneficially and be worth adopting without it, is not fatal, while the omission of what is known to be necessary to the enjoyment of the invention is fatal. Curtis, sec. 248.

An excess of description does not injure the patent, unless the addition be fraudulent. Curtis, sec. 250.

Accordingly, when the inventor says, "I recommend the following method," he does not thereby constitute such method a portion of his patent. His patent may be infringed, although the party does not follow his recommendation, but accomplishes the same end by another method.

But the patentee does not even recommend that the kernels shall be cut off in such manner that a large portion of the hull shall remain upon the cob, nor does he distinctly recommend the cutting off of the kernels in any manner. His recommendation is simply that the kernels be removed by any convenient and suitable method. His language is, "I recommend the following method: select a superior quality of sweet corn in the green state, and remove the kernels from the cob by means of a curved and gauged knife or other suitable means." Any means that are suitable for removing the kernels, whether by knife or any other method, are within this language.

That the simple removal of the corn from the cob, before it is subjected to heat, without reference to cutting it off in such manner as to leave a portion of the hull on the cob, or without reference to cutting at all, is the claim of Winslow's patent, is clearly shown by another consideration.

The first patent of Winslow and his second patent, as stated in the opinion of the court below, are intended to effect the same purposes; the one being a patent for the article, the other for the process by which the article is produced. "Both patents (it is there said) may be con-

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sidered together, as all the proofs applicable to one apply equally to the other; and the positions taken in argument are the same in both, without an exception."

Now, it is quite significant of the intent of the claimant, and of the meaning of the first patent, that his second patent, which is for the process, and would properly be more specific as to every essential mode, makes no claim that the corn shall be removed from the cob by cutting, much less that it should be cut in any particular manner, or with a view to any particular effect. After describing his disappointment in the result when he merely cooked the corn, and in attempting to preserve it when packed, without removal from the cob, or where it was removed after having been boiled on the cob, he says: "Finally, I adopted the process of removing the corn from the cob, packing the kernels in cans, hermetically sealing the same, then boiling the cans until the corn contained therein became completely cooked." The word "cutting" is not to be found in this patent. Removal from the cob before commencing the preservation, without reference to the manner or means except only that they should be suitable, is the plain intent of both patents. In this respect they are identical with each other, and are not inconsistent with Durand's patent.

The discovery in question has been of immense benefit to mankind. By means of food preserved in a compact and nutritious form, protected from its natural tendency to decay, deserts are traversed, seas navigated, distant regions explored. It is less brilliant, but more useful than all the inventions for the destruction of the human race that have ever been known. It is to France that the honor of this discovery belongs, and to Appert, a French citizen. It does not belong to America or to Winslow. Appert's process presents all that we now know upon the subject. It contains absolutely everything of value that is contained in Winslow's patent.

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Other grave questions are presented by the record before us. We are satisfied, however, to place our decisions upon the ground that the want of novelty in the patents of Winslow is fatal to the plaintiff's right of recovery. We do not discuss the other questions.

The decree of the court below must be reversed, and a decree ordered in favor of the defendant below.

Mr. Justice CLIFFORD, dissenting:

Damages are claimed in this case by the complainants for an alleged infringement of two certain letters patent, which are fully described in the bill of complaint. Those letters patent are as follows: (1) No. 34,928, dated April 8, 1862, for a new article of manufacture—namely: Indian corn when preserved in the green state, without drying the same, the kernels being removed from the cob, hermetically sealed, and heated, substantially in the manner and for the purpose set forth in the specification. (2) No. 35,274, for a new and useful improvement in preserving green corn.

Two other patents were included in the bill of complaint; but they were held to be invalid in the court below, and are not in issue in this investigation.

Both the patents in issue were introduced in evidence at the hearing, and the repeated decisions of this court have established the rule, that a patent duly issued, when introduced in evidence by the complainant in a suit for infringement, is *prima facie* evidence that the patentee is the original and first inventor of what is therein described as his invention.

Much consideration need not be given to the question of infringement, as the respondent admits that his foreman put up seven hundred cans of green corn, preserved by the same process substantially as that described in the letters patent of the complainants.

Viewed in the light of these suggestions, it is clear that the decision of the case depends upon the defenses set up

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in the answer. (b) Four separate defenses are pleaded but (c) it will be sufficient to examine the first, as the decision of the court is placed chiefly on the defense set up in that part of the answer; which is, that the assignor of the patentee is not the original and first inventor of the improvements described in the respective letters patent.

1. Defenses involving the validity of a patent cannot be satisfactorily examined or their sufficiency or insufficiency determined without first ascertaining what the inventions are which are the subject matter of the controversy. Beyond doubt, the invention secured by the first patent is for a new and useful manufacture described as Indian corn preserved in the green state. What the inventor desired to accomplish was to preserve the unripe corn in the green state for table use, without drying the same; and he states, that, in his first attempt to accomplish the desired result, he did not remove the kernels from the cob, but that the product manufactured in that mode was not satisfactory, as the article obtained was very bulky, and failed to retain the peculiar sweetness of green corn cooked in the ordinary way, the same being absorbed, as the patentee supposes, by the cob.

Experiments of various kinds were made to overcome the difficulties attending the effort to preserve the corn without drying the same, which were also unsuccessful, as the kernels when preserved did not retain the milk and other juices of the corn, leaving the product hard, insipid and unpalatable, and without the full flavor of fresh green corn. All such experiments were, therefore, abandoned; but he finally succeeded in producing an entirely satisfactory new article of manufacture, which is the one described in the specification and claim of the first patent.

His description of the method he adopted in manufacturing the product is substantially as follows: select a superior quality of sweet corn when in the milk or green

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(b) Otto substitutes for from b-c, "Of the separate defenses pleaded."

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state; remove the kernels from the cob by means of a curved and gauged knife or other suitable means; pack the kernels with the juices of the same in cans, and hermetically seal the cans, so as to prevent evaporation under heat, or the escape of the aroma of the corn. Other suitable means are such means, and such only, as will perform the same functions. When packed, the cans with their contents are to be exposed to steam or boiling heat for an hour and a half; then take the cans out of the steam or boiling heat and puncture the cans, and immediately reseal the same while hot, and continue the heat for two hours and a half longer.

Exposure to heat in the manner stated is for the purpose of cooking the contents of the cans; and, when that is accomplished, the cans may be taken out of the boiling heat and be slowly cooled in a room at the temperature of seventy to a hundred degrees Fahrenheit. Green corn thus packed and treated, the patentee states, may be warranted to keep for an indefinite period in any climate. Being preserved in its natural state as near as possible, it retains the peculiar sweetness and flavor of fresh green corn right from the growing field, and it is only necessary to heat the corn in order to prepare it for the table, as it is fully cooked in the process of preserving.

Argument to show that the Commissioner may grant a patent for a product or new manufacture and one for the process is quite unnecessary, as that question is now firmly settled in favor of the power by the unanimous decision of this court. *Rubber Co. v. Goodyear*, 9 Wall. 788 [8 Am. & Eng. 150]; *S. C. 2 Cliff.* 371; *Seymour v. Osborne*, 11 Wall. 559 [8 Am. & Eng. 290]; *Goodyear v. Railroad Co.*, 2 Wall., Jr. 356; *Curt. Pat.*, 4th ed. secs. 269, 327.

2. Pursuant to that rule, the second patent of the complainants was issued, which embodies an invention for a new and useful improvement in preserving green corn; or, in other words, the patented invention is for the process of

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manufacturing the new product described and secured to the inventor in the other letters patent.

Applicants for a patent are required to describe their respective inventions; but an invention for a product and an invention for the process to produce the product bear so close a relation to each other, that it is difficult even for an expert to describe the latter without more or less reference to the former. Defects of the kind, however, are of no importance, if the patent for the product contains no claim to the invention for the process.

Separate applications may be made in such a case; or the inventor, if he sees fit, may describe both inventions in one application. Accordingly, the patentee in this case presented only one application in the first place for both patents; but, pending the hearing in the Patent-Office, he filed separate specifications, the second containing some of the same phrases as those employed in the specification describing the invention of the new manufacture. Among other things, he admits that it has long been common to boil green corn or unripened corn, and then to dry the same for winter use; but he adds that corn thus dried must be boiled again when prepared for the table, and that it is more or less hard and insipid, as it loses the fine flavor of fresh green corn. Ears of corn also, he says, are sometimes boiled, and hermetically sealed in cans; but the cob seems to absorb the sweetness of the kernels; or if the kernels are removed from the cob after boiling, and then preserved, still the fine flavor of the natural corn is lost.

Many and varied attempts were made by the patentee to preserve green corn on the cob without drying the same; but all his efforts in that behalf were unsuccessful, as they left the article dry and unpalatable, as the sweetness of the green corn was absorbed by the cob. Experiments of the kind having all failed, he conceived the idea of first removing the corn from the cob, and then boiling or cooking the kernels, and preserving them as separated from the cob.

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Some benefit, it seems, resulted from that new conception; but a new difficulty arose, from the fact, that, the kernels of corn being more or less broken in being removed from the cob, the milk and other juices of the corn were dissolved and diluted by the water in the process of boiling, leaving the product insipid, unpalatable and comparatively tasteless.

Unable to overcome the difficulty in that mode, he next attempted to cook the corn without allowing it to come in contact with the water, by exposing the cans containing the corn to boiling water; but he soon found that that mode of preserving the corn was unsatisfactory, as a long time was required to cook the corn sufficiently for preservation, and the corn became more or less dried and hard.

Sufficient has already been remarked to show that both patents may be considered together, for the reason that all the proofs applicable to the patent for the product are equally applicable to the patent for the process, and the positions taken in argument are the same in both, without an exception.

Want of novelty is the principal defense set up in the answer; and the court decides that the respective patents are invalid, chiefly upon the ground that the foreign invention secured to Peter Durand is prior in date. Before examining that defense, it becomes necessary to refer somewhat more fully to the nature and peculiar characteristics of the respective improvements, in order that the evidence introduced may be correctly understood and properly applied.

Unripe ears of corn may be boiled and hermetically sealed in cans without infringing the inventions of the patentee; but the difficulty with that product is, that the cob absorbs the sweetness of the kernels, and the article becomes insipid and unpalatable and, consequently, it is not salable to any considerable extent. Sales of such a product do not infringe the patents of the complainants; and it is clear

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that the kernels may be removed from the cob, and then preserved in cans in the ordinary mode, without any conflict with the improvements embodied in the complainants' patents ; but the product which such a process produces is comparatively valueless, as the fine flavor of green corn cooked in the usual way for table use is lost in the process of manufacture.

Indian corn may also be preserved when in a green state by removing the kernels from the cob, and boiling or cooking the same before the kernels are packed in cans hermetically sealed, without subjecting the manufacturer to the charge of infringing the patents described in the bill of complaint ; but the decisive objection to that process is, that the kernels, or many of them, in being removed from the cob, are broken, and consequently the milk and other juices of the corn in that state are dissolved out in the process of boiling or cooking, and the natural aroma of green corn cooked in the usual way is lost, and the product becomes of little or no value as an article of commerce.

Attempts were made by the patentee in this case to remedy that difficulty by packing the kernels in cans not sealed, and exposing the cans containing the kernels to boiling water ; but the experiments were not satisfactory, as it required a long time to cook the corn, during which the milk and other juices of the corn evaporated, and left the kernels dry and hard. All such experiments having failed, the inventor adopted the process of removing the corn from the cob by means of a curved and gauged knife and packing the kernels with the milk and other juices of the same in cans hermetically sealed, and then boiling the cans with their contents until the same became completely cooked ; but he states that the cans containing the corn must be very strong, or the internal pressure will cause them to burst ; and, to prevent that, he practised puncturing them after they became well heated, to allow the air to escape, immediately resealing the same to prevent the evaporation of the juices of the corn and the loss of its natural aroma.

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Sealed cans, if sufficiently strong, it would seem, may be used to complete the process without the necessity of puncturing during the period they are exposed to the boiling bath ; but, unless the cans are very strong, the recommendation is to puncture them, in order to relieve the internal pressure and to prevent them from bursting. Other advantages result from puncturing the cans which deserve consideration. Even if the cans when not punctured do not burst, still the air contained in the same and the vapor become more or less expanded by the heat, so as to press the heads of the can outward, giving the can the appearance of cans which contain gaseous products of decomposition ; and the statement is, that such appearances, even when the corn is perfectly preserved, diminish the value of the product as an article of commerce, and show that it is better to puncture and reseal the cans during the process of boiling.

Looked at in any light, it is clear that the purpose of the invention secured by the second patent, as evidenced by the language of the description, is to preserve not only the farinaceous elements of the kernels, but also the milk and juices of the same which give the peculiar aroma or flavor to green corn when cooked for the table in the usual way, during the season when the kernel is full, but before the milk and juices of the kernel become concrete, as in ripe corn.

Beyond all doubt, the patented process, if the directions are properly followed, will accomplish the purpose for which it was invented, and will enable the manufacturer to preserve the kernels of the green corn, with all the milk and juices which the kernels contain, without any chemical or other change except what is produced by the cooking, which is effected by putting the sealed cans containing the kernels with their milk and other juices, just as the same were removed from the cob, by the curved and gauged knife, into the boiling water for the periods specified in the description of the specification.

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Proof to that effect, of the most satisfactory character, is exhibited in the record; and the fact that the product of the patented process, to the extent that it has become known, has driven the product of all other processes intended to effect a like result out of the market, attests its accuracy and truth. Suffice it to say, that the remarks made are sufficient to explain and describe what the inventions are which give rise to the present controversy; and, having accomplished that purpose, the next inquiry is, whether the assignor of the complainants was the original and first inventor of the respective improvements.

Examined merely in the light of the pleadings, the affirmative of the issue is upon the complainants; but, the complainants having introduced the respective patents in question, the rule is well settled that the burden of proof is changed, and that it is incumbent upon the respondent to show by satisfactory proof that the alleged inventor was not the original and first inventor of the respective improvements, as they have alleged in their answer.

Ample time was given to both parties in the Circuit Court to prepare for a hearing, and the respondents attempted to meet the issue in two ways:

3. Suppose it be true that the assignor of the complainants was the first person in the United States who practised the patented process, and preserved green corn even in that mode of operation; still it is contended that the alleged inventor was not the original and first inventor of the improvement, because the process had been previously known and used in a foreign country; but the Circuit Court ruled and determined that the mere previous knowledge or use of a thing patented in a foreign country was not sufficient to defeat a patented invention granted under the Patent Act; that no evidence of the kind could have that effect unless it appeared that the same invention had been previously patented in some foreign country, or been described in some public work, anterior to the supposed discovery

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thereof here by the alleged inventor; that it is well settled law, that the mere introduction of a foreign patent or a foreign publication, though of a prior date, will not supersede a domestic patent, unless the description of specifications or drawings contain or exhibit a substantial representation of the patented improvement in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which the invention appertains, to make, construct and practice the invention to the same practical extent as he would be enabled to do if the information was derived from a prior patent issued in pursuance of the Patent Act. *Seymour v. Osborne*, 11 Wall. 555 [8 Am. & Eng. 290].

Unable to controvert those propositions, the respondent next refers to the English patent granted to Durand, and insists that it supersedes both of the patents of the assignor of the complainants. His patent bears date the 30th of August, 1810; and the specification states, in substance, that he incloses the food or articles to be preserved in bottles, or other vessels of glass, pottery, tin or other metals or fit materials, and closes the apertures of the vessels so as completely to cut off and exclude all communication with the external air. When the vessels have been thus charged and well closed, he places them in a boiler, each separately surrounded with straw or wrapped in coarse cloth, or otherwise defended from striking against each other. He then fills the boiler so as to cover the vessels with cold water, and gradually heats the water till it boils, and continues the ebullition for a certain time, which, as he says, must depend upon the nature of the substances and other obvious circumstances.

Vegetable substances, the specification states, are to be put into the vessels in the raw or crude state. Animal substances are to be partly or half cooked, although these may be put in raw; and he adds that articles thus prepared may be kept for a very long time and in a state fit

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for use ; and no doubt is entertained that unripe corn prepared in that way may be kept for a long time, as it is evident that the kernels would be dried by the heat, but they would necessarily cease to have the flavor of fresh green corn when cooked in the usual way for table use. Confirmation of that is found in what immediately follows in the specification, which shows that the patentee also claims the application of heat in other modes, as by placing the vessels in an oven or a stove, the effect of which, beyond all doubt, would be to dry the kernels, and make it necessary to reboil the contents of the vessel in order to fit the same for table use.

Certain vegetable substances may, perhaps, be preserved to advantage in that way ; but it is clear that the application of high heat to the vessels containing green corn, unless the kernels were surrounded by water or some other suitable liquid, would necessarily dry the kernels, and render them unfit for table use without soaking or reboiling. Doubtless the term "vegetable substances" is comprehensive enough to include green corn ; but the patentee, in enumerating the articles to be preserved, does not mention green corn ; and, of course, the specification contains nothing to indicate whether the kernels are or are not to be removed from the cob before they are placed in the bottles or other vessels ; or, if to be removed, in what manner the removal is to be effected ; nor whether the kernels are to be left whole or broken, as in the mode of operation described in the patents in question.

Corn at that period was unknown in England, and it is not probable that the patentee had ever heard of such an article, and it does not appear that a can of green corn has ever been preserved in that mode of operation to the present time. Patented inventions must be described so that those skilled in the art or science may be able to make, construct and practice the same ; and yet it is plain that no amount of study or examination of the foreign specifica-

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tion would ever enable any person to preserve green corn in the mode of operation employed by the assignor of the complainants.

Study it as you will, and the conclusion must be that the vegetable substance, whatever it may be, is to be placed in the bottles or other vessels in the raw or crude state, without any previous preparation, and without any liquid to prevent the substance from drying. Indian corn on the cob, or unbroken kernels of green corn, cannot be preserved in that way so as to possess any commercial value.

Instead of packing the kernels in the cans in their crude state, the process patented by the assignor of the complainants directs that the kernels should be cut from the cob in a way which leaves the coarser part of the hull on the cob, and breaks open the kernels, liberating the juices, to use the language of the patentee, and causing the milk and other juices of the corn to flow out and surround the kernels as they are packed in the cans, in such a mode that the milk and juices of the kernels form the liquid in which the whole is cooked when the sealed cans are subjected to the bath of boiling water. Water is never added to the mixture to be preserved; nor is it necessary, as the liquid composed of the milk and juices of the kernels is sufficient to prevent the heat from drying the vegetable substance to be preserved; and, if water should be added, it would dilute the milk and other juices, and render the product insipid and valueless.

Evidently much is due to that feature in the patented mode of operation in preserving the product in its natural state, and causing it to retain the sweetness, peculiar flavor and natural aroma of green corn fresh gathered from the field, and boiled in the usual way for table use. Nothing of the kind is suggested in the foreign patent, and it is clear that a careful comparison of the description of the complainants' patents with that of the Durand patent fully justifies the opinion of the learned expert examined by the complain-

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ants, that the two patented processes are essentially and substantially unlike, and confirms the conclusion already expressed, that persons having no other knowledge of the complainants' process than what they can derive from perusing the specification of the foreign patent would never be able to preserve green corn by the complainants' mode of operation.

Palpable as those differences are, they ought not to be overlooked in determining the issues between these parties. Meritorious inventors are entitled to protection; and the proofs are full to the point that the product, manufactured by the process of the complainants, is far superior to that preserved in any other mode; which, beyond all question, is the cause that induced the respondent to abandon other methods, and to practice the patented process at the risk of a suit for infringement.

Other vegetables, such as beets and carrots, or peas and beans, may be packed in cans in a crude state under the foreign process, as they retain their juices and may, perhaps, be tolerably well preserved in that mode of operation if entirely secluded from the atmosphere, as by packing ripe vegetables in hermetically sealed cans; but the chemical composition of such vegetables is very different from green sweet corn, which is much more difficult to preserve in its natural freshness without loss of its peculiar flavor and aroma, as accomplished by the complainants' process. When the kernels are cut from the cob, they are opened, and the milk and other juices flow out, and become the liquid in which the kernels are to be cooked, and the milk and the other juices become a constituent part of the vegetable substance to be preserved.

Prompt action is required to accomplish the object; for, if the mixture is exposed to the air for any considerable time before the cans are filled, the chemical relations of the constituents will be changed, and the whole substance will become sour and unwholesome. Exposure to heat, if season-

Dissenting opinion.

process described in the foreign patent; but the decisive answer to that concession is, that that process is not the process of the complainants; and the product preserved in that mode of operation is of a very inferior quality, as appears by the concurrent testimony of all the witnesses. Sweet corn in the green state is a peculiar substance, differing in material respects from any other cereal or vegetable used for food. Its constituents are such, that it is singularly susceptible to fermentation, decomposition and change; more so than any other vegetable that has been successfully preserved in hermetically closed vessels for any considerable length of time. Such liability to rapid change is not due to any one particular constituent, but to the presence of several, such as gluten, sugar, fat and starch in such proportions as are calculated to promote fermentation and action upon each other. As compared with sweet peas, for instance, the kernels of sweet corn are much more delicate, and liable to change, as they contain a much larger proportion of milk, juice or sap, which itself contains more sugar, starch and oil than the juice of sweet peas, and the glutinous constituents which act as the ferment or primary cause of change are much more active in the juice of sweet corn than in that of sweet peas.

Equally instructive support to the same view is derived by comparing sweet corn with such fruits as peaches, as the juice of the peach contains no oil and more water than the corn, besides other differences of an equally important character; showing that such fruits as peaches are much less liable to ferment than sweet corn, and that they are much more easily preserved.

Examined in the light of these suggestions, as the case should be, it is clear that the mode of operation described in the complainants' specification differs widely from every process which preceded it, and that it effects a new and highly useful result. Wide differences in the mode of operation from anything which it is proved ever existed

Notes and Citations.

before is shown in every descriptive feature of the complainants' specification; and so palpable and marked are those differences, that it would create astonishment and surprise if any competent expert can be found who would now venture to testify that the foreign process given in evidence is the same as that practiced by the complainants.

Great injustice, in my opinion, is done to the appellees in this case; but they may still enjoy the satisfaction to know, that, while courts of justice may alter the names of things, they cannot change the things themselves without exercising positive invention; nor can they obliterate the relation between cause and effect, for the reason that the law which regulates that relation is irrepealable.

91 U. S. 199.

Notes:

1. As to the effect of use abroad, with or without domestic inventor's knowledge. See

Shaw v. Cooper, 7 Pet. 292 [4 Am. & Eng. 286].

O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483].

Roemer v. Simon, 95 U. S. 214.

5. Sufficiency of specification:

Evans v. Eaton, 7 Wheat, 356 [4 Am. & Eng. 105].

Wood v. Underhill, 5 How. 1 [4 Am. & Eng. 551].

Battin v. Taggert, 17 How. 74 [6 Am. & Eng. 242].

Valve Co. v. Valve Co., 113 U. S. 157.

Western Electric Mfg. Co. v. Ansonia Brass Co., 114 U. S. 447.

Notes and Citations.

Patent in Suit:

No. 34,928. Winslow, I. April 8, 1862. (Reissue No. 7,067, April 18, 1876.) Canning Green Corn.
No. 35,274, Winslow, I. May 13, 1862. (Reissue No. 7,061, April 18, 1876.) Preserving Corn.

OTHER SUITS ON SAME PATENT:

Jones v. Hodges, 1871. 1 Holmes, 37.
Jones v. Sewall, 1873. 3 Cliff. 563 ; 6 Fish. 343 ; 3 O. G. 630.
Jones v. Merrill, 1875. 8 O. G. 401.
Jones v. McMurray, 1877. 2 Hughes, 527 ; 3 Ban. & Ard. 130 ;
13 O. G. 6.

Cited:**IN CIRCUIT COURTS IN:**

Jones v. McMurray, October, 1877. 3 Ban. & Ard. 130 ; 2 Hughes,
527 ; 13 O. G. 6.
Walker v. Rawson, February, 1879. 4 Ban. & Ard. 128.

IN DECISIONS OF COMMISSIONER OF PATENTS IN:

Winslow, April, 1876. 9 O. G. 795.

Notes and Citations.

IN TEXT-BOOKS:

Merwin on Pat. Inv't., 1883, p. 155.

Walker on Pats., 1883, pp. 125, 133.

Syllabus.

JOSEPH RECKENDORFER, APPELLANT, v. EBERHARD FABER. *

92 (2 Otto) U. S. 347-358. Oct. Term, 1875.

[Bk. 23, L. ed. 719; 10 O. G. 71.]

Affirming *Ibid.*, 12 Blatch. 68.

Argued April 19, 20, 21, 1876. Decided May 8, 1876.

Patentability. Conclusiveness of Commissioner's decision. Want of invention. Particular patent construed. Invention. Double use. Mechanical skill. Combination.

1. Under Act 1836, sec. 6, no one is entitled to a patent unless (1) he has discovered or invented an art, machine, or manufacture, (2) which art, machine, or manufacture is new, (3) which is also useful, (4) which is not known or patented. It is not sufficient that it is alleged or supposed, or even adjudged by some officer to possess these requisites. It must in fact possess them, and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established, to wit: before the judicial tribunals of the country. (p. 390.)
2. The decision of the Commissioner of Patents is not conclusive on the question of invention, its utility, and importance, novelty and prior use. His decision in the allowance and issue of a patent creates a *prima facie* right only and upon all questions involved therein the validity of a patent is subject to the examination of the courts. (p. 391.)
3. The defense of want of invention is provable, when it exists under any general denial and is not excluded by Act 1836, sec. 15. (p. 395.)
4. Letters patent No. 19,783, H. L. Lipman, March 30, 1858, Lead Pencil and Eraser, *construed* to be for a combination consisting in the application of a piece of rubber to one end of the same piece of wood which makes a lead pencil, in which no effect is produced or result follows from the joint use of the two, and *held* wanting in patentable invention. (p. 396.)

* See Explanation of Notes, page III.

5. The law requires more than a change of form, or juxtaposition of parts, or of the external arrangement of things, or of the order in which they are used to give patentability. (p. 397.)
6. A double use is not patentable, nor does its cheapness make it so. (p. 397.)
7. Mechanical skill distinguished from invention. It is not patentable. (p. 397.)
8. A combination to be patentable must produce a different force, effect, or result in the combined forces or processes from that given by their separate parts. There must be a new result produced by their union; if not so, it is only an aggregation of separate elements. (p. 398.)
9. Reissued letters patent, No. 3,863, J. Reckendorfer, March 1, 1870, original patent No. 86,854, November 4, 1862, Lead Pencil, *held* invalid for want of invention. (p. 399.)

[Citations in opinion of the Court:]

- Hotchkiss v. Greenwood, 11 How. 248 [5 Am. & Eng. 240]. p. 392.
 Stimpson v. Woodman, 10 Wall. 117 [8 Am. & Eng. 221]. p. 393.
 Hailes v. Van Wormer, 20 Wall. 353. [9 Am. & Eng. 340]. pp. 393, 397.
 Rubber Tip Pencil Co. v. Howard, 20 Wall. 498. [9 Am. & Eng. 390]. pp. 394, 398.
 Smith v. Nichols, 21 Wall. 112. [9 Am. & Eng. 425]. p. 394.
 Hicks v. Kelsey, 18 Wall. 670. [9 Am. & Eng. 150]. p. 394.
 Seymour v. Osborne, 11 Wall. 516. [8 Am. & Eng. 290]. p. 394.
 Curtis Pat. sec. 50. p. 397.
 Curtis Pat. secs. 56, 78 b. p. 397.

Appeal from the Circuit Court of the United States for the Southern District of New York.

The case is stated by the court.

See *The Rubber Tip Pencil Co. v. Howard*, 87 U. S. 498, and the opinion of Mr. Examiner Clarke, incorporated in the brief of Mr. Betts in that case.

The specifications and drawings of the Lipman patent and of the Reckendorfer reissue are as follows:

Statement of the case.

H. L. LIPMAN, PHILADELPHIA, PA.

Letters Patent No. 19,783. Dated March 30, 1858. Extended
March 30, 1872.

The schedule referred to in these Letters Patent, and making part
of the same.

To all whom it may concern :

Be it known that I, Hymen L. Lipman, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Lead Pencil and Eraser, and I do hereby declare * * * the following is a full, clear and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

I make a lead pencil in the usual manner, reserving about one-fourth of the length, in which I make a groove of suitable size A, and insert in this groove a piece of prepared India-rubber (or other erasive substance) secured to said pencil by being glued at one edge, the pencil is then finished in the usual manner, so that on cutting one end thereof, you have the lead B, and on cutting at the other end you expose a small piece of India-rubber C, ready for use, and particularly valuable for removing or erasing lines, figures, etc., and not subject to be soiled, or mislaid on the table or desk.

In making mathematical, architectural and many other kinds of drawings, in which the lines are very near each other the eraser is particularly useful as it may be sharpened to a point to erase any marks between the lines, and should the point of the rubber become soiled or inoperative from any cause, such cause is easily removed by a renewed sharpening, as in the ordinary lead pencil.

I do not claim the use of a lead pencil with a piece of India-rubber or other erasing material attached at one end for the purpose of erasing marks, but

What I do claim as my invention, and desire to secure by letters patent, is the combination of the lead and India-rubber, or other erasing substance, in the holder of a drawing pencil, the whole being constructed and arranged substantially in the manner and for the purposes set forth

HYMEN L. LIPMAN.

Witnesses :

LEWIS A. LIPMAN,

JOHN P. CHARLTON.

JOSEPH RECKENDORFER, OF NEW YORK, N. Y.

Letters Patent No. 36,854, dated November 4, 1862; reissue No. 3,863, dated March 1, 1870.

IMPROVEMENT IN PENCILS.

The schedule referred in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, Joseph Reckendorfer, of New York, in the county and State of New York, have invented a certain new and improved Pencil; and I hereby declare the following is a full and exact description of the same, reference being had to the accompanying drawings, in which—

Fig. 1 is a side view of a pencil made in accordance with my invention;

Fig. 2, a longitudinal section;

Fig. 3, a cross-section on the line S S; and

Fig. 4, a cross-section on the line Z Z.

My invention is intended to provide a means whereby articles of greater size or diameter than the lead may be securely held in the head of a pencil of otherwise ordinary or suitable construction, without making the body of the pencil cumbrous or inconvenient. To this end,

H. L. Linnman.
Pencil & Eraser.
Nº 19,783. Patented Mar. 30, 1858



Statement of the case.

My invention consists—

First, of a pencil composed of a wooden sheath and lead core, having one end of the sheath enlarged and recessed, to constitute a receptacle for an eraser or other similar article, as hereinafter stated.

Second, of a pencil, the wooden case of which gradually tapers from its enlarged and recessed head toward its opposite end for the whole or a portion of its length, as hereinafter set forth.

The receptacle for the eraser or other article is formed in the head without too much weakening the wood, owing to the form of the sheath, while for the same reason the end of the pencil which contains the ordinary lead is not cumbersome nor clumsy, but can be readily held between the fingers, just as an ordinary pencil is.

In the drawings—

A is the wood casing of the pencil, made in two parts, and glued together in the ordinary manner, but made larger at one end than at the other, as represented.

This casing is grooved out with a small groove, for the reception of the black-lead or plumbago B, as usual, but for only a portion of its length. The remainder, at the larger end, has a much larger groove or recess, in which the India-rubber C, or other similar article to be therein held, is placed, as represented.

Pencils of equal size throughout have been heretofore made with a slip of rubber fitted in in place of the lead at one end, but such pencils have not become of any considerable practical importance, in consequence of the smallness of the rubber, and it has been held impracticable to make the rubber much larger, without too much weakening the wood or making the entire pencil thick and awkward to handle.

By my invention the size of the rubber may be so increased, while that of the lead remains the same, as to render it a very effective eraser, the size of the pencil head being such as to render it a convenient receptacle for a rubber of much more considerable size or diameter than the lead.

Statement of the case.

In preparing the wood portions of my pencil, I prefer to saw the material into tapering slips, lying alternately with the ends in opposite directions, and afterward reduce these pieces to the required form, thus economizing material as far as possible.

I make the exterior of my improved pencil of a round, square, hexagonal, octagonal, oval, or other section, as may be desired, and finish it in any style, but always make the head of a larger diameter than the opposite end.

The lead and rubber may also be of any desired section, and may be also tapered, if preferred, but the rubber should always be the larger, and I prefer the uniform section of each, as represented.

Any other erasive material may be substituted for the rubber C without effecting the character of my invention, or a crayon or lead of a different color or quality may be substituted therefor, if desired. Crayons and the softer qualities of lead require a larger section than that given to the part B, and the enlarged head of the pencil will receive them equally as well as the rubber.

What I claim as new, and desire to secure by Letters Patent, is—

1. A pencil composed of a wooden sheath and lead core, having one end of the sheath enlarged and recessed, to constitute a receptacle for an eraser or other similar article, as shown and set forth.

2. A pencil, the wooden case of which gradually tapers from its enlarged and recessed head toward its opposite end, for the whole or a portion of its length, substantially as shown and described.

In testimony whereof I have hereunto affixed my hand, this 24th day of December, 1869, before two subscribing witnesses.

JOS. RECKENDORFER.

Witnesses :

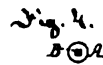
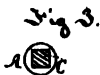
A. M. BARKER,
GEO. M. KING.

J. Reckendorfer,
Pencil.

No. 3803.

Reissued Mar. 1. 1870.

Fig. 1.



Witnesses.

Signature.

Thomas S. Nelson
Juan Patterson

John Reckendorfer

Argument of counsel.

Messrs. Edmund Wetmore, C. M. Keller and C. F. Blake, for appellant:

The appellant contends:

1. That the patent is to be construed as one for a new manufacture, having a novel combination of useful qualities, and novel and useful peculiarities of structure, as a completed article; that it is not to be construed as a patent for a machine, or a mere combination, in the technical sense of mechanical devices.

2. That, thus construed and compared with every article of the same class proved to have been previously known or used, it is found to possess the following useful properties: the pencil and eraser are enclosed in a sheath, which can be cut away to expose fresh portions of each, as required for use; the eraser is thus preserved and lasts as long as the pencil, instead of being used up before the pencil, as is the case when it consists of the attachment of a mere bit of rubber; the erasing part forms a really effective eraser besides having a peculiar adaptability for erasing fine lines, or lines close together; the common sheath or handle is an economical arrangement of space whereby the whole is made compact, and in shape and appearance no more than an ordinary lead pencil, while serving the double purpose of a pencil and eraser; it is simple and can be cheaply made, and the combined implement is as good for either the purpose of erasing or marking as separate implements intended for one of those purposes alone. Some, although not all, of these useful properties were found in combined pencils and erasers which previously existed; none that previously existed had all of these properties at the same time.

Its novel and useful peculiarities of structure consisted in this: a common sheath or handle, so modified as to its interior grooves that grooves of different dimensions and suitable for containing materials intended for opposite purposes are contained in the same sheath, a device so far, as the evidence discloses, new in itself. A modified

Argument of counsel.

form of eraser, so that part of it shall form a handle for a pencil, and a modified form of pencil, so that part of it shall form a handle for an eraser; such an organization of two separate instruments in a single tool that certain parts of the latter shall serve a double purpose, are devices new in their application to pencils and erasers.

3. That the conception of the application of these devices to uniting pencils and erasers, the perception of the peculiar utility of such application, the embodiment of the idea in a tangible form, proving, which could not be actually known until so proved; that such embodiment would be, in every respect, practically successful, constitutes true invention.

4. That this conclusion is strengthened by two circumstances:

(a) However obvious the application of devices made by Lipman may now appear, nevertheless nobody thought of it before, although the useful object to be obtained by such application was an object of attention. Pencil makers had tried and were trying various means to make a united pencil and eraser; the utility and value of a united pencil and eraser were plainly to be seen, as well as the profit to be made by anyone who might devise a simple way of making such articles, so that they might be manufactured on a large scale; yet to no person skilled in the art or otherwise, occurred the idea embodied in the implement made by Lipman.

(b) The great utility of the invention has been proved by its being the foundation of a new kind of manufacture and the subject of a large public demand. This, under the circumstances of this case, is a strong piece of evidence to show the existence of a genuine invention. *Stanley Works v. Sargent*, 8 Blatchf. 344.

In the case before the court the utility of Lipman's im-

Argument of counsel.

v. Van Wormer, 20 Wall. 353 [9 Am. & Eng. 340]; nor from a mere variation of things intended to be variable in use, as in *Kay v. Marshall*, 2 Web. Pat. Cas. 34, 84; Curt. Pat. sec. 59; nor from mere change of material, as in *Hotchkiss v. Greenwood*, 11 How. 248 [5 Am. & Eng. 240]; nor from mere superiority of workmanship; and if the utility of the change cannot be attributed to any of these causes, the process of reasoning by exclusion leads plainly to the conclusion that utility was due to the presence of actual invention.

It is, therefore, claimed that it was error to hold that Lipman's was not a true invention. This conclusion is fortified by authority.

Numerous patents have been granted and sustained for articles of manufacture, including patents for the union of two tools in one implement, upon the principles above laid down.

Matter of Lipman, 1 Off. Gaz. 304; Penn. Salt Mfg. Co. v. Thomas, 5 Fish. 148; Same v. Gugenheim, 3 Fish. 423; Robertson v. Secombe Mfg. Co., 6 Fish. 268; Masury v. Anderson, 6 Fish. 457; Barnes v. Straus, 5 Fish. 531; Putnam v. Hickey, 5 Fish. 334; Masury v. Tiemann, 8 Blatchf. 429; Arkell v. Hurd Pap. Bag Co., 7 Blatchf. 475; R. R. Co. v. Dubois, 12 Wall. 47 [8 Am. & Eng. 433]; Hawes v. Washburne, 5 Off. Gaz. 491; Grosjean v. Peck, etc. Co., 11 Blatchf. 54; Welling v. Rubber, etc. Co., 7 Off. Gaz. 606; *Re Lehman*, Com. Dec., 1870, p. 70; Many v. Jagger, 1 Blatchf. 372; Monce v. Adams, 7 Off. Gaz. 177; Sherman's Appeal, 7 Off. Gaz. 1054; Culp's Appeal, 5 Off. Gaz. 427; Platt v. U. S., etc. Co., 1 Off. Gaz. 524; Matter of Wachs, 8 Off. Gaz. 907.

Messrs. John S. Washburn and George Gifford, for appellee:

It is submitted that the alleged invention, shown in the Lipman and Reckendorfer patent is not patentable.

As already argued, what is shown and described is

Argument of counsel.

merely the aggregation in the wooden holder of a drawing pencil made in the usual manner, at the respective ends of its central groove of the marker of lead and eraser of India-rubber, or other erasing material; in other words, as shown by defendant's expert, the aggregation in a common handle of two instruments: a lead pencil and an eraser, without any reciprocal or co-operative action or operation, neither being modified by being so united; in fact, nothing being accomplished save a convenient juxtaposition.

That such a mere aggregation is not properly a combination in the sense of the patent law, nor patentable as such, may now be considered well settled, by adjudications in this court, in circuit courts and in the Patent Office, to which it is only necessary to refer, and in many of which the aggregation involved was analogous, in every respect, to that shown in the present case.

Hailes v. Van Wormer, 7 Blatchf. 443; affirmed by this court; *Sawyer v. Bixby*, U. S. C. C., Southern District N. Y., 1 Off. Gaz. 165; *Gallahue v. Butterfield*, Southern District N. Y., 2 Off. Gaz. 645; *Sarven v. Hall*, U. S. C. C., District of Conn., 1 Off. Gaz. 437; *Dane v. Chicago Mfg. Co.*, Bk. 23, L. ed. 82 [9 Am. & Eng. 546], 7 Off. Gaz. 924; *Stimpson v. Woodman*, 10 Wall. 117 [8 Am. & Eng. 221]; *Bean v. Smallwood*, 2 Story, 408; *Winans v. R. R. Co.*, 2 Story, 412; *Hotchkiss v. Greenwood*, 11 How. 248 [5 Am. & Eng. 240]; *Ex parte Van Wagemen Co.*, 1 Off. Gaz. 89; *Monce v. Adams*, 1 Off. Gaz. 1; *Ex parte Prindle*, 1 Off. Gaz. 404; *Ex parte La Duc*, 1 Off. Gaz. 549; *Morse's Appeal*, 3 Off. Gaz. 468; *Baker's Appeal*, 4 Off. Gaz. 156; *Castle's Appeal*, 1 Off. Gaz. 179.

In *Union Paper Collar Co. v. Van Deusen* (p. 156 *ante*), 7 Off. Gaz. 919, in this court, Justice CLIFFORD, delivering the opinion, said:

"Nothing short of invention or discovery will support a patent for manufacture, any more than for an art, machine or composition of matter, for which proposition there is abundant authority in the decisions of this court," citing

Opinion of the court.

Hotchkiss v. Greenwood, 11 How. 265 [5 Am. & Eng. 240]; *Phillips v. Page*, 24 How. 167 [7 Am. & Eng. 97]; *Jones v. Morehead*, 1 Wall. 162 [7 Am. & Eng. 165]; *Stimpson v. Woodman*, 10 Wall. 121 [8 Am. & Eng. 221].

And see, *Glue Co. v. Upton*, 6 Off. Gaz. 840; *Adams' Appeal*, 3 Off. Gaz. 150; *Draper v. Hudson*, *Shepley, J.*, 3 Off. Gaz. 354; *Union Paper Collar Co. v. Van Deusen, Blatchf., J.*, 2 Off. Gaz. 361; *Jerome's Appeal*, Com. Dec., 3 Off. Gaz. 64; *Wattle's Appeal*, Com. Dec., 3 Off. Gaz. 291; *Beach's Appeal*, Com. Dec., 3 Off. Gaz. 607,

Mr. Justice HUNT delivered the opinion of the court :

This is an appeal from a decree of the United States Circuit Court for the Southern District of New York, dismissing the bill of complaint, which was filed to restrain the infringement by the respondent of certain letters patent and for an accounting and damages.

These patents relate to the manufacture of combined pencils and erasers.

1. The first, No. 19,783, was granted to Hymen L. Lipman, March 30, 1858; and was extended for a further term of seven years from the 30th of March, 1872.

The material parts of the specification are as follows :

"I make a lead pencil in the usual manner, reserving about one-fourth of the length, in which I make a groove of suitable size, *A*, and insert in this groove a piece of prepared India-rubber (or other erasive substance), secured to said pencil by being glued at one edge. The pencil is then finished in the usual manner; so that, on cutting one end thereof, you have the lead, *B*, and on cutting at the other end you expose a small piece of India-rubber, *C*, ready for use, and particularly valuable for removing or erasing lines, figures, etc., and not subject to be soiled, or mislaid on the table or desk.

In making mathematical, architectural, and many other kinds of drawings, in which the lines are very near each

Opinion of the court.

other, the eraser is particularly useful, as it may be sharpened to a point to erase any marks between the lines; and should the point of the rubber become soiled or inoperative from any cause, such cause is easily removed by a renewed sharpening, as in the ordinary lead pencil."

The claim is as follows:

"I do not claim the use of a lead pencil with a piece of India-rubber, or other erasing material, attached at one end for the purpose of erasing marks; but what I do claim as my invention, and desire to secure by letters patent, is the combination of the lead and India-rubber, or other erasing substance, in the holder of a drawing-pencil, the whole being constructed and arranged substantially in the manner and for the purposes set forth."

The drawings forming part of the specification exhibit

Opinion of the court.

its opposite end for the whole or a portion of the length, as hereinafter set forth.

“The receptacle for the eraser or other article is formed in the head, without too much weakening the wood, owing to the form of the sheath ; while, for the same reason, the end of the pencil which contains the ordinary lead is not cumbrous nor clumsy, but can be readily held between the fingers, just as an ordinary pencil is.”

Having thus described his invention, Reckendorfer claims :

“1. A pencil composed of a wooden sheath and lead core, having one end of the sheath enlarged and recessed to constitute a receptacle for an eraser, or other similar article, as shown and set forth.

“2. A pencil, the wooden case of which gradually tapers from its enlarged and recessed head towards its opposite end for the whole or a portion of its length, substantially as shown and described.”

The points we propose here to discuss are two :

First. Is the article patented by the plaintiff and his assignor, and for the infringement of which patent this action is brought, a patentable invention within the laws of the United States ?

Second. Is it within the power of the courts to examine and determine this question ? or is the decision of the Commissioner of Patents, when, by issuing a patent, he decides that the invention is patentable, final and conclusive on the point ?

The plaintiff contends that the decision of the Commissioner is conclusive upon the point of invention ; and that the question, as distinct from that of want of novelty, is one not open to the judgment of the court. In the natural order of things, this question is the first one to be examined ; for, if it shall appear that the contention of the plaintiff is correct in this respect, the question in regard to the patentability of the instrument now before us will not

Opinion of the court.

arise. The point will have been decided for us, and by a controlling authority.

The "Act to Revise, Consolidate and Amend the Statutes Relating to Patents and Copyrights" passed July 4, 1836, 5 Stat. at L. 118, is the act regulating this case.

By the 6th section thereof it is enacted, "That any person having invented or devised any new and useful art, machine, manufacture, or composition of matter, not known or used by others before his invention or discovery thereof, and not at the time of his application for a patent in public use, or on sale with his consent or allowance as the inventor or discoverer, and shall desire to obtain an exclusive property therein, may make application in writing to the Commissioner, expressing such desire; and the Commissioner, on due proceedings had, may grant a patent therefor. * * * He shall make oath that he believes himself to be the first inventor or discoverer thereof, and that he does not know or believe that the same has ever before been used."

Looking at this section alone, it may be safely said no one is entitled to a patent unless, (1) he has discovered or invented an art, machine or manufacture; (2) which art, machine or manufacture is new; (3) which is also useful; (4) which is not known or patented as therein mentioned. It is not sufficient that it is alleged or supposed, or even adjudged, by some officer, to possess these requisites. It must, in fact, possess them; and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established; to wit, before the judicial tribunals of the country.

The 7th section of the act (p. 120) provides, that on the filing of any such application, etc., and the payment of the duty required by law, the Commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery; and if on such examination, it shall not appear to the Commissioner that the same has been in-

Opinion of the court.

vented or discovered by any other person in this country prior to the alleged discovery, or patented or described in any foreign publication, or been in public use, or on sale with the consent of the applicant, and if he shall be of the opinion that the same is sufficiently useful and important, the Commissioner shall issue a patent therefor.

Before the Commissioner is authorized to issue a patent, it must appear to him that the claimant is justly entitled to a patent; *i. e.*, that his art, machine or manufacture, possesses all the qualities before mentioned. The Commissioner must also be satisfied, that, if it possesses these qualities, it is sufficiently useful and sufficiently important to justify him in investing it with the *prima facie* respect arising from the governmental approval. These restrictions are wise and prudent; are intended to secure at least a probable advantage to those who deal with the favorites of the government; for they may justly be so termed who receive the exclusive right of making or using or vending particular arts or improvements.

It is nowhere declared in the statute that the decision of the Commissioner, as to the extent of the utility or importance of the improvement, shall be conclusive upon that point; but, in the section just quoted, it is placed in the same category with the want of novelty and the other requisites of the statute; and it is expressly conceded by the appellant that the judgment of the Commissioner on the question of novelty is not conclusive, but that that point is open to examination. On that subject the practice of the courts is uniform in holding it to be subject to inquiry.

The plaintiff's counsel, in his brief, put his argument in this form: "The Commissioner then passes on these questions: (1) Did the applicant himself make the invention? This question is settled by his oath." This is true to the extent and for the purpose of issuing a patent, and to this extent only. When the patentee seeks to enforce his

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patent, he is liable to be defeated by proof that he did not make the invention. The judgment of the Commissioner does not protect him against the effect of such evidence. (2) The counsel says: "Was the invention new? This question is solved by the examination required by the act." To the same extent only. The defense of want of novelty is set up every day in the courts, and is determined by the court or the jury as a question of fact upon the evidence adduced, and not upon the certificate of the Commissioner. (3) The counsel says again, "Is the invention sufficiently useful and important? This the Commissioner settles for himself by the use of his own judgment. It is a question of official judgment." These questions are all questions of official judgment, and are all settled by the judgment of the Commissioner. His judgment goes to the same extent upon each question. He determines and decides for the purpose of issuing or refusing a patent. When the patent is sought to be enforced, the questions, and each of them, are open to judicial examination. We see many reasons why all the questions of invention, novelty, and prior use, should be open to examination in each case; and such we believe to be the course of the authorities, and practice of the courts.

A reference to some of the most recent cases, and to those decided by this court, will be sufficient. A review of all the cases in this court, and the various circuit courts where this question has been alluded to, will not be profitable.

In *Hotchkiss v. Greenwood*, 11 How. 248 [5 Am. & Eng. 240], a patent had been granted for a "new and useful improvement in making door and other knobs, of all kinds of clay used in pottery and of porcelain," by having the cavity in which the screw, or shank, is inserted, by which they are fastened, largest at the bottom of its depth, in form of a dovetail, and a screw formed therein by pouring in metal in a fused state. The precise question argued in

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this court and decided, was of the patentability of this invention, and it was held not to be patentable. The only thing claimed as new, was the substitution of a knob made of clay or porcelain for one made of wood. This, it was said, might be cheaper or better ; but it was not the subject of a patent. The counsel for the defendants, in their points, there say : "The court now is called upon to decide whether this patent can be sustained for applying a well known material to a use to which it had not before been applied, without any new mode of using the material, or any new mode of manufacturing the article sought to be covered by the patent." Mr. Justice NELSON delivered the opinion of the court to the effect already stated. Mr. Justice WOODBURY dissented, not upon the question of the power of the court to pass upon the validity of the patent, but rather in regard to the manner in which the facts were submitted to the jury.

In *Stimpson v. Woodman*, 10 Wall. 117 [8 Am. & Eng. 221], it was decided that the engraving or stamping of the figure upon the surface of a roller for pebbling leather by pressure, where the use previously had been of a smooth roller, required no invention ; that it was a change involving mechanical skill merely, and not patentable. Mr. Justice Clifford dissented from the majority of the court, but expressly says that the question of patentability is for the decision of the jury, and not for the court, upon a bill of exceptions. The majority of the court held that the question could be considered upon a bill of exceptions ; and no one claimed that the decision of the Commissioner concluded the question.

In *Hailes v. Van Wormer*, 20 Wall. 353 [9 Am. & Eng. 340], the question of the patentability of certain improvements in stoves, was largely discussed in this court upon appeal from the Circuit Court for the Northern District of New York. It was held that, if a new combination produces new and useful results, it is patentable, though all

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the constituents of the combination were known and in use previous to the combination ; but the results must be the product of the combination, not a mere aggregate of several results, each the complete product of one of the combined elements. It was held that the facts there present did not create a compliance with this principle ; and the judgment, that the plaintiff's bill be dismissed, was affirmed.

In *Rubber Tip Pencil Co. v. Howard*, 20 Wall. 498 [9 Am. & Eng. 390], the same principle was affirmed. In delivering the opinion, the Chief Justice says : "The question which naturally presents itself for consideration at the outset of this inquiry is, whether the new article of manufacture claimed as an invention was patentable as such ; if not, there is an end of the case, and we need not go further." He makes a careful examination of the claim, and concludes that there is nothing patentable in the character of the invention. The decree of the court below dismissing the bill was unanimously affirmed upon that ground.

In *Smith v. Nichols*, 21 Wall. 115 [9 Am. & Eng. 425], an elaborate opinion to this same effect was delivered by Mr. Justice SWAYNE, and concurred in unanimously by the court. The only question discussed is the patentability of the invention.

Hicks v. Kelsey, 18 Wall. 670 [9 Am. & Eng. 150], is a similar case. To this rule, the case of *Seymour v. Osborne*, 11 Wall. 516 [8 Am. & Eng. 290], cited by the defendant, is no exception. The remarks there made are chiefly upon the subject of reissues, and are in accordance with the principles above set forth. Even as to reissues, their conclusiveness is limited to questions of fact, and is accompanied by the statement that they are re-examinable in court, when it is apparent upon the face of the patent that the Commissioner has exceeded his authority, or there is such a repugnance between the old and the new patent that it must be held as a matter of legal construction that the new patent is not for the same invention as that embraced and secured in the original patent. Pp. 543, 544.

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We do not attach much significance to the fact that the 15th section of the act of 1836 allows the defendant to plead the general issue, and to give in evidence, upon thirty days' notice, special matter tending to prove the various matters therein referred to. The statute in that respect was intended to create an easy system of pleading, and to relieve from any doubt the admissibility in that form of the defenses specified. The argument, that because permission is given to prove under the general issue, that the specification does not contain the whole truth, or that it intentionally and deceitfully contains too much, or that the patentee was not the first discoverer, or that it had been in prior use, it follows that proof that there is no invention or discovery at all, or that the invention has no importance, cannot be made, is quite unsound. Proof that there is no invention or discovery strikes at the root of the whole claim. The patent is based on an affirmative fact, of which this is the direct negative. It needed no statute to aid or justify this defense. It is provable when it exists under any general denial, like the fact of not guilty or *non assumpsit* in cases where guilt or a promise is first to be established.

Upon the proposition that the decision of the Commissioner on the question of invention, its utility and importance, is conclusive, and that the same is not open to examination in the courts, we are unanimously of the opinion that the proposition is unsound. His decision in the allowance and issue of a patent creates a *prima facie* right only; and, upon all the questions involved therein, the validity of the patent is subject to an examination by the courts.

We come, then, to the question: does the article patented by Lipman, and improved by Reckendorfer, involve an invention? or is it a product of mechanical skill or a construction of convenience only?

The article presented is for the performance of mechan-

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ical operations, to produce mechanical results, and is a mechanical instrument as much as a brush, a pen, a stamp, a knife, a file or a screw. Whether it is styled a manufacture, a tool or a machine, it is an instrument intended to produce a useful mechanical result; and the question presents itself: does it embody any new device, or any combination of devices producing a new result?

In the first place, what is not claimed by the specification of Lipman is to be observed. "I do not claim," he says, "the use of a lead pencil with a piece of rubber attached at one end." Of course he does not claim a lead pencil as his invention, nor the use of a strip of India-rubber for erasure. Each of these articles had been in long and general use. But he claims as his invention "the combination of the lead and India-rubber in the holder of a drawing-pencil," in the manner set forth. There is nothing peculiar in the manner set forth. The claim is simply of the combination of the lead and India-rubber in the holder of a drawing-pencil; in other words, the use of an ordinary lead-pencil, in one end of which, and for about one-fourth of its length, is inserted a strip of India rubber, glued to one side of the pencil. The pencil is to be made in the "usual manner:" *i.e.*, he takes an ordinary lead pencil, and in this he makes "a groove of suitable size," giving no idea of what he deems a suitable size; and in this groove he inserts a piece of prepared India-rubber, which is glued to one edge of the pencil. "The pencil is then finished in the usual manner; so that, in cutting one end thereof, you have the lead, *B*, and on cutting the other end you expose a small piece of India-rubber, *C*, ready for use." It is evident that this manner of making or applying the instrument gives no aid to the patent. It must rest where the patentee claims to place it; that is, on the combination.

This combination consists only of the application of a piece of rubber to one end of the same piece of wood which makes a lead-pencil. It is as if a patent should be

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granted for an article, or a manufacture, as the patentee prefers to term it, consisting of a stick twelve inches long, on one end of which is an ordinary hammer, and on the other end is a screw-driver or a tack-drawer, or, what you will see in use in every retail shop, a lead-pencil, on one end of which is a steel pen. It is the case of a garden rake, on the handle end of which should be placed a hoe, or on the other side of the same end of which should be placed a hoe. In all these cases there might be the advantage of carrying about one instrument instead of two, or of avoiding the liability to loss or misplacing of separate tools. The instruments placed upon the same rod might be more convenient for use than when used separately. Each, however, continues to perform its own duty, and nothing else. No effect is produced, no result follows, from the joint use of the two.

A handle in common, a joint handle, does not create a new or combined operation. The handle for the pencil does not create or aid the handle for the eraser. The handle for the eraser does not create or aid the handle for the pencil. Each has and each requires a handle the same as it had and required, without reference to what is at the other end of the instrument; and the operation of the handle of and for each is precisely the same, whether the new article is or is not at the other end of it. In this and the cases supposed you have but a rake, a hoe, a hammer, a pencil or an eraser, when you are done. The law requires more than a change of form, or juxtaposition of parts, or of the external arrangement of things, or of the order in which they are used, to give patentability. Curtis, Pat., sec. 50; Hailes, v. Van Wormer, 20 Wall. 353 [9 Am. & Eng. 340]. A double use is not patentable, nor does its cheapness make it so. Curtis, sections 56, 73. An instrument or manufacture which is the result of mechanical skill merely is not patentable. Mechanical skill is one thing; invention is a different thing. Perfection of workmanship,

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however much it may increase the convenience, extend the use, or diminish expense, is not patentable. The distinction between mechanical skill, with its conveniences and advantages and inventive genius, is recognized in all the cases. *Rubber Tip Pencil Co. v. Howard*, and other cases [*supra*]; *Curtis*, sec. 72 *b*.

The combination, to be patentable, must produce a different force or effect, or result in the combined forces or processes, from that given by their separate parts. There must be a new result produced by their union; if not so, it is only an aggregation of separate elements. An instance and an illustration are found in the discovery, that, by the use of sulphur mixed with India-rubber, the rubber could be vulcanized, and that without this agent the rubber could not be vulcanized. The combination of the two produced a result or an article entirely different from that before in use. Another illustration may be found in the frame in a saw-mill, which advances the log regularly to meet the saw, and the saw which saws the log; the two co-operate and are simultaneous in their joint action of sawing through the whole log; or in the sewing machine, where one part advances the cloth, and another part forms the stitches, the action being simultaneous in carrying on a continuous sewing. A stem-winding watch key is another instance. The office of the stem is to hold the watch, or hang the chain to the watch; the office of the key is to wind it. When the stem is made the key, the joint duty of holding the chain and winding the watch is performed by the same instrument. A double effect is produced or a double duty performed by the combined result. In these and numerous like cases the parts co-operate in producing the final effect, sometimes simultaneously, sometimes successively. The result comes from the combined effect of the several parts, not simply from the separate action of each; and is, therefore, patentable.

In the case we are considering, the parts claimed to make

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a combination, are distinct and disconnected. Not only is there no new result, but no joint operation. When the lead is used, it performs the same operation and in the same manner as it would do if there were no rubber at the other end of the pencil; when the rubber is used, it is in the same manner and performs the same duty as if the lead were not in the same pencil. A pencil is laid down and a rubber is taken up, the one to write, the other to erase; a pencil is turned over to erase with, or an eraser is turned over to write with. The principle is the same in both instances. It may be more convenient to have the two instruments on one rod than on two. There may be a security against the absence of the tools of an artist or mechanic from the fact, that, the greater the number, the greater the danger of loss. It may be more convenient to turn over the different ends of the same stick, than to lay down one stick and take up another. This, however, is not invention within the patent law, as the authorities cited fully show. There is no relation between the instruments in the performance of their several functions, and no reciprocal action, no parts used in common.

We are of the opinion, that, for the reasons given, neither the patent of Lipman nor the improvement of Reckendorfer can be sustained, *and that the judgment of the Circuit Court dismissing the bill must be affirmed.*

STRONG, J. :

I dissent from so much of the opinion of the majority of the court as holds that the instrument or manufacture described in the patents exhibits no sufficient invention to warrant the grant of a patent for it.

Also dissent, Mr. Justice DAVIS and Mr. Justice BRADLEY.

Notes and Citations.

Notes:

1. Act 1790, sec. 1; Act 1793, sec. 1; Act 1800, sec. 1; **Act 1836**, sec. 6; Act 1863, sec. 1; Act 1870, sec. 24; R. S. sec. 4886.
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2. Commissioner's decision on the question of invention is not conclusive:

Gardner v. Herz, 118 U. S. 180.

3. The question of patentability is always open to the court, whether raised or not by the defense:

Brown v. Piper, 91 U. S. 44 [p. 272 *ante*].

Dunbar v. Meyers, 94 U. S. 187.

Slawson v. Railroad, 107 U. S. 649.

4. **Aggregation:**

Hailes v. Van Wormer, 20 Wall. 353 [9 Am. & Eng. 340].

Rubber Coated Harness Co. v. Welling, 97 U. S. 7.

Pickering v. McCullough, 104 U. S. 310.

Packing Co. Cases, 105 U. S. 566.

Tack Co. v. Two Rivers Co., 109 U. S. 117.

Bussey v. Excelsior Mfg. Co., 110 U. S. 181.

Stephenson v. Railroad, 114 U. S. 149.

Beecher Mfg. Co. v. Atwater Mfg. Co., 114 U. S. 523.

Thatcher Heating Co. v. Burtis, 121 U. S. 286.

Mosler Safe & Lock Co. v. Mosler, Bahmann & Co., 127 U. S. 354.

Hendy v. The Golden State & Miner's Iron Works, 127 U. S. 370.

Notes and Citations.

7. Patentabilty of mechanical skill; see

Thompson v. Boisselier, 114 U. S. 1.

Pomace Holder Co. v. Ferguson, 119 U. S. 335.

Patent in suit :

No. 19,783. Lipman, H. L. March 30, 1858. Lead Pencil and Eraser. *a*.

No. 36,854. Reckendorfer, J. November 4, 1862. Reissue No. 3,863, March 1, 1870. Pencil. *b*.

OTHER SUITS ON SAME PATENT:

Reckendorfer v. Faber, 1874. 12 Blatch. 68; 1 Ban. & Ard. 229; 5 O. G. 697.

Cited :

IN SUPREME COURT IN:

Pickering v. McCullough, 1881. 104 U. S. 310; Bk. 26 L. ed. 749.

Phillips v. Detroit, 1884. 111 U. S. 604; Bk. 28 L. ed. 532.

Stephenson v. Brooklyn Cross Town R. Co., 1885. 114 U. S. 149; Bk. 29 L. ed. 58.

Hendy v. The Golden State & Miner's Iron Works, 1888. 127 U. S. 370.

IN CIRCUIT COURTS IN :

Herring v. Nelson, September, 1877. 14 Blatch. 293; 3 Ban. & Ard. 55; 12 O. G. 753.

Notes and Citations.

Williams v. Rome, Watertown & Ogdensburg R. R. Co., August, 1878. 15 Blatch. 200; 3 Ban. & Ard. 413; 15 O. G. 653.

Alcott v. Young, March, 1879. 16 Blatch. 134; 4 Ban. & Ard. 197; 7 Reporter, 552; 16 O. G. 403.

Perfection Window Cleaner Co. v. Bosley, May, 1880. 9 Biss. 385; 5 Ban. & Ard. 449; 2 Fed. Rep. 574; 10 Rep. 67.

Doubleday v. Roess, July, 1880. 11 Fed. Rep. 737; 22 O. G. 861.

Yale Lock Mnfg. Co. v. Norwich Nat. Bank, March, 1881. 19 Blatch. 123; 6 Fed. Rep. 377.

Beatty v. Hodges, July, 1881. 19 Blatch. 381; 8 Fed. Rep. 610; 12 Reporter, 231; 20 O. G. 1666.

Sawyer v. Miller, May, 1882. 4 Woods, 472; 12 Fed. Rep. 725.

Perry v. Co-operative Foundry Co., May, 1882. 20 Blatch. 498; 12 Fed. Rep. 436; 22 O. G. 1623.

Clark Pomace Holder Co. v. Ferguson, July, 1883. 21 Blatch. 376; 17 Fed. Rep. 79; 24 O. G. 1090.

Tower v. Bemis & Call Hardware & Tool Co., February, 1884. 19 Fed. Rep. 498.

Mosler Safe & Lock Co. v. Mosler, February, 1885. 22 Fed. Rep. 901; 31 O. G. 1689.

Peard v. Johnson, April, 1885. 23 Fed. Rep. 507; 32 O. G. 895.

Scott Mnfg. Co. v. Sayre, August, 1885. 37 Fed. Rep. 153; 35 O. G. 255.

Niles Tool Works v. Betts Machine Co., April, 1886. 27 Fed. Rep. 301.

Leonard v. Lovell, Dec. 1886. 29 Fed. Rep. 310.

National Sheet Metal Roofing Co. v. Garwood, April, 1888. 35 Fed. Rep. 658.

IN DECISIONS OF COMMISSIONER OF PATENTS IN :

Sargent & Burge, August, 1876. 10 O. G. 285.

Cobb, June, 1874. 5 O. G. 751.

McLaren & Coventry, August, 1876. 10 O. G. 335.

Blackman v. J. B. & R. J. Morray, October, 1877. 13 O. G. 175.

Ex parte Cardwell, November, 1878. 15 O. G. 293.

Notes and Citations.

Waring v. Wilkerson, November, 1878. 15 O. G. 246.

Glidden v. Copeland, March, 1879. 15 O. G. 920.

Ex parte Skinner, March, 1881. 19 O. G. 662.

IN CANADIAN COURTS IN:

Smith v. Goldie, June, 1882. 7 Ontario App. R. 628.

IN TEXT-BOOKS:

2 Abb. Pat. Law., 1886, pp. 52, 316.

Merwin on Pat. Invt., 1883, pp. 12, 19, 20, 395, 400, 401, 404, 406, 427, 452.

Walker on Pats., 1883, pp. 24, 128, 356.

Statement of the case.

CALEB IVES ET AL., PLAINTIFFS IN ERROR, v. MILTON A. HAMILTON, ADMINISTRATOR OF PALMER HAMILTON, DECEASED.*

92 (2 Otto) U. S. 426-432. Oct. Term, 1875.

[Bk. 23, L. ed. 494; 10 O. G. 336.]

Affirming *Hamilton v. Ives*, 6 Fish. 244.

Argued December 8, 6, 1875. Decided January 24, 1876.

Particular patent construed. Infringement. Improvement. Sufficient description.

1. The claim of letters patent No. 51,310, P. Hamilton, December 5, 1865, Saw Mill, for "giving to the saw in its downward movement a rocking or rolling motion, by means of the combination of the cross-head working in the curved guides at the upper end of the saw, the lower end of which is attached to a cross-head working in straight guides and pivoted to the pitman below the saw, with the crank-pin," *held* infringed by the combination of a guide consisting of two straight lines—an equivalent for the curved guide, with the lower end of the saw attached below instead of above the cross-head, both being calculated to give to the saw the precise rocking or vibratory motion desired. The description of the invention, it being an improvement on an old machine, *held* sufficiently specific. (p. 414.)
2. Where the same movement was obtained in a machine by a change in the attachment of one part to another, it was *held* not a change of principle. (p. 416.)
3. Where an invention is claimed as an improvement on an old machine, it is properly taken for granted that a practical mechanic is acquainted with the construction of the machine upon which the improvement is made. (p. 417.)

In error to the Circuit Court of the United States for the Eastern District of Michigan.

*See Explanation of Notes, page III.

Statement of the case.

Palmer Hamilton brought a suit at law in the Circuit Court of the United States for the Eastern District of Michigan, against the plaintiffs in error, Caleb Ives and George B. Green, to recover damages for the infringement of letters patent granted to the said Hamilton by the United States, December 5, 1865, for the original invention of a new and useful improvement in saw mills.

The cause was tried before a jury November 22, 1872, upon a plea of the general issue, with notice of certain special matter, to wit:

1. That the defendants would prove that, for the purpose of deceiving the public, the description and specification by the patentee was made to contain less than the whole truth relative to his invention.

2. That substantially the same improvement was invented and patented February 18, 1851, by Isaac Straub and by others.

Upon the issues thus made, the jury found a verdict for the plaintiff. A motion for a new trial was made, argued and denied.

Thereupon the defendants brought the case to this court.

The case is stated in the opinion.

The specifications and drawing of the Hamilton patent are as follows:

PALMER HAMILTON, OF DETROIT, MICHIGAN.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 51,310, dated December 5, 1865.

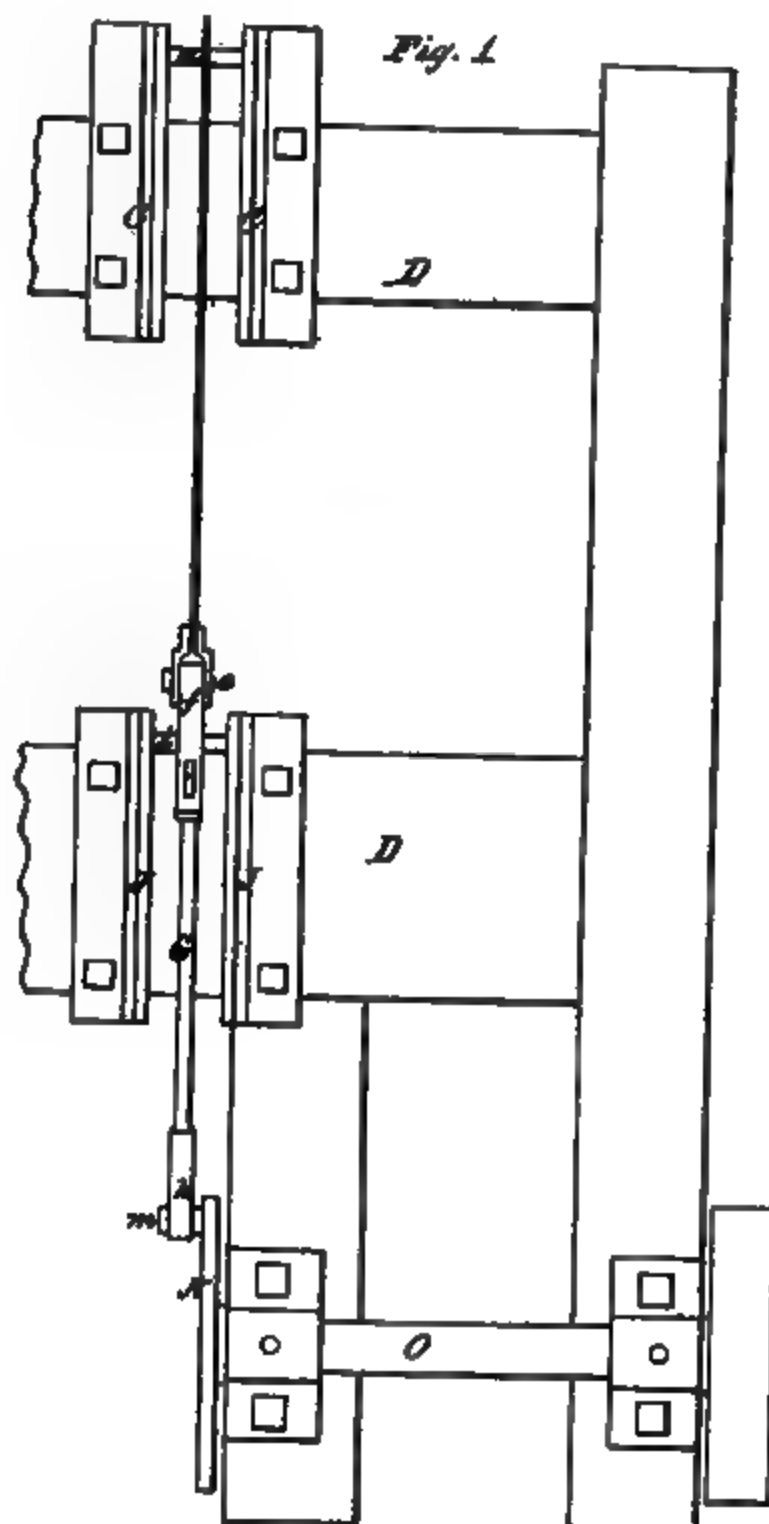
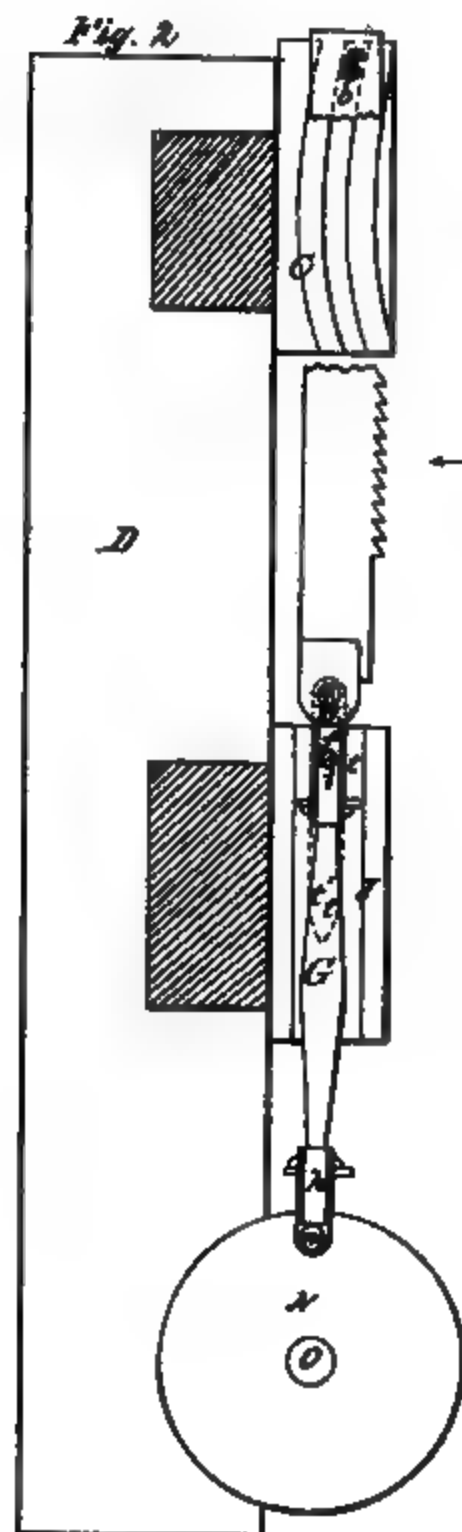
To all whom it may concern:

Be it known that I, Palmer Hamilton, of Detroit, in the county of Wayne and State of Michigan, have invented

*P. Hamilton,
Saw-Mill,*

Nº 51,310,

Patented Dec. 5, 1865.



*Witnesses
A. F. Walter
H. B. Bennett*

*Inventor
Palmer Hamilton
by his attorney
S. P. Kenrick*

Statement of the case.

certain new and useful Improvements in Hanging and Running Saws in Saw-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Fig. 1 represents a front elevation of a portion of a saw-mill with my improvements applied thereto. Fig. 2 represents a vertical section of the same with a portion of the saw removed, and Fig. 3 represents a side view of one of the lower guides of the saw.

The object of my invention is to impart to the saw of a saw-mill a rocking motion while it is cutting, so that the movement of its toothed edge then assimilates to that of the pit-saw operated by hand.

To this end my invention consists of the combination of the saw with a pair of curved guides at the upper end of the saw and a lever connecting-rod or pitman, straight guides, pivoted cross-head and slides or blocks, and crank-pin or their equivalents at the opposite end, whereby the toothed edge of the saw is caused to move unequally forward and backward at its two ends while cutting.

The best mode of embodying my invention in a practical form with which I am acquainted is represented in the accompanying drawings, in which the saw is fitted at its upper extremity with a cross-head, *a*, whose ends are pivoted in blocks *b*, which are arranged to slide in the grooves of a pair of curved guides, C C, that are secured to the frame D of the saw-mill.

The lower end of the saw is connected by a pivot, *e*, with the overhanging end *f* of a lever-connecting-rod, G, which is fitted at a point intermediate between its two ends *f* *h* with a cross-head, *i*. The ends of this cross-head are pivoted in a pair of blocks, *k*, which are arranged to slide in the grooves of a pair of guides, J J, that are secured to the frame of the saw-mill. The lower end, *h*, of the connecting-rod G is connected with a crank-pin, *m*, which pro-

Statement of the case.

jects from the face of a wheel, N, secured to a rotating shaft, O, by turning which the saw is caused to move to and fro.

The feed-motion of the saw-mill must, of course, be arranged to cause the log to be moved in the direction of the arrow *s* toward the cutting-edge of the saw. As the upper guides are concave to the advance of the log, the effect upon the upper end of saw is, that while it is descending it also moves in the direction indicated by the arrow *s*, and it continues this movement as it descends until about half of the stroke is accomplished. Then, during the remainder of the stroke it moves in a direction the reverse of that indicated by the arrow *s*. Moreover, as the connecting-rod is made to oscillate upon the axis of its cross-head *i* by the rotary motion of the crank, the end *f*, which overhangs the cross-head and is connected with the saw, and that end of the saw are caused to describe a curved line, *t*, which is convex to the advance of the log, so that the lower end of the saw has a curved movement the reverse of that of its upper end. The result is that the toothed edge of the saw rocks upon its work with a movement similar to that of the ordinary pit-saw worked by hand, and the cutting is materially facilitated. On the other hand, when the saw rises, its lower end is caused, by the oscillation of the connecting-rod, to describe a curve (represented by the dotted line *t'*) which is concave to the advance of the log, so that the toothed edge is moved away from the wood or freed therefrom, thereby permitting the log to be fed forward during the whole ascent of the saw, and also permitting the sawdust to escape after each cut, however deep the cut may have been, whereby choking is effectually prevented.

Having thus described the best mode with which I am acquainted of embodying my improvements, what I claim as my invention, and desire to secure Letters Patent, is—

Giving to the saw in its downward movement a rocking or rolling motion by means of the combination of the cross-head working in curved guides at the upper end of the

Argument of counsel.

saw, the lower end of which is attached to a cross-head working in straight guides and pivoted to the pitman below the saw, with the crank-pin, substantially as described.

In witness whereof I hereunto set my hand this 4th day of August, 1864.

PALMER HAMILTON.

Witnesses :

WM. JENNISON, Jr.,

C. CROUSE.

Mr. Charles J. Hunt, for plaintiffs in error :

The combination is an entirety. If one of the ingredients be given up, the thing claimed disappears.

Vance v. Campbell, 1 Black, 428 [7 Am. & Eng. 117]; Gill v. Wells, 6 Pat. Off. Gaz. 881, 885.

If one ingredient is substituted for another in a combination, if the ingredient is new or performs substantially a different function, it is no infringement.

Roberts v. Harnden, 2 Cliff. 504; Gill v. Wells, above quoted; Turrill v. R. R. Co., 3 Fish. 330.

The inventor of a combination, in improving old machines, cannot invoke the doctrine of equivalents to suppress other improvements which are not merely colorable evasions of the first.

McCormick v. Talcott, 20 How. 402, 405 [6 Am. & Eng. 410]; Burden v. Corning, 2 Fish. 477, 489.

The question in dispute is : what is the proper construction of the claim of the patent on which this suit is brought? The defendant in error contends for a broad claim and such a broad claim as shall not only shut out all subsequent improvements, but one which requires the whole specification to be set aside; while the plaintiffs in error contend that the claim is for a combination, and that it being in terms for a result produced by a combination substantially as described, it should be held to be a claim of the described means; or rather, of the particular organization and devices by means of which the specified result is obtained.

Seymour v. Osborne, 3 Fish. 559 ; S. C., 11 Wall. 547 [8 Am. & Eng. 290] ; *Mitchell v. Tilghman*, 19 Wall. 287 [9 Am. & Eng. 174].

Messrs. H. H. Wells and John H. B. Latrobe, for defendant in error :

Mere colorable differences or slight improvements cannot shake the rights of the original inventor.

Odiorne v. Winkley, 2 Gall. 51.

"If the defendants have taken the same general plan and applied it for the same purpose, although they may have varied the mode of construction, it will still be substantially, and in the eye of the patent law, the same thing." *McCormick v. Seymour*, 2 Blatchf. 240.

A mere colorable or slight alteration of a machine, or a change in its proportions, gives no ground for a patent, nor can it shelter from the consequences of an infringement. The question is, whether the principle of the two machines is the same. *Brooks v. Bicknell*, 3 McLean, 262.

If the defendants use a substantial part of the invention patented, though with some modifications of form or apparatus, it is a violation of a patent-right.

Wyeth v. Stone, 1 Story, 273 ; *Carver v. Mfg. Co.*, 2 Story, 432 ; *Davis v. Palmer*, 2 Brock., 299 ; *Smith v. Higgins*, 1 Fish. 537 ; *Lowell v. Lewis*, 1 Mason, 182, 191.

Mere formal alterations of a combination in letters patent do not constitute any defense to the charge of infringement ; as the inventor of a combination is as much entitled to suppress every other combination of the same ingredients to produce the same result, not substantially different from what he has invented and caused to be patented, as the inventor of any other patented improvement.

Rees v. Gould, 6 Fish. Pat. Cas., 106 ; 15 Wall. 187 [9 Am. & Eng. 39] ; *Cliff.*, citing *Seymour v. Osborne*, 11 Wall. 555 [8 Am. & Eng. 290] ; *Union Paper Bag Co. v. Nixon*, 6 Fish. Pat. Cas. 402 ; *Graham v. Mason*, 5 Fish. Pat. Cas. 1-11 ; *Conover v. Roach*, 4 Fish. Pat. Cas. 12.

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To constitute an infringement it is not necessary that the two inventions should be identical. The question is: were the means used substantially the same?

Alden v. Dewey, 1 Story, 336; Root v. Ball, 4 McLean, 180; Parker v. Haworth, 4 McLean, 374; Burr v. Duryee, 1 Wall. 573 [7 Am. & Eng. 224].

The introduction of a mechanical equivalent does not relieve from the charge of infringement.

Tompkins v. Gage, 5 Blatchf. 268; Taylor v. Garretson, 9 Blatchf. 156; Conover v. Roach, 4 Fish. Pat. Cas. 12; Carter v. Baker, 4 Fish. Pat. Cas. 404; Gould v. Rees, 15 Wall. 187 [9 Am. & Eng. 39].

One machine is the same in substance as another, if the principle be the same in effect, although the form of the machine be different.

Buck v. Hermance, 1 Blatchf. 398; Blanchard v. Beers, 2 Blatchf. 418; Parkhurst v. Kinsman, 1 Blatchf. 497.

Mr. Justice BRADLEY delivered the opinion of the court:

This was an action brought to recover damages for the infringement of certain letters patent granted to Hamilton, the plaintiff below, for an improvement in saw-mills. The defendants pleaded the general issue, with notice of special matter, setting up several prior inventions, amongst others that of one Isaac Straub. The plaintiff's patent was dated the 5th day of December, 1865. His improvement, as described therein, consisted of the combination of the saw with a pair of curved guides at the upper end of the saw, and a lever, connecting rod or pitman, straight guides, pivoted cross-head, and slides or blocks and crank-pin, or their equivalents, at the opposite end, whereby the toothed edge of the saw is caused to move unequally forward and backward at its two ends while cutting. His claim is, "Giving to the saw in its downward movement a rocking or rolling motion, by means of the combination of the cross-head working in the curved guides at the upper end

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of the saw, the lower end of which is attached to a cross-head, working in straight guides and pivoted to the pitman below the saw, with the crank-pin, substantially as described."

The old method of guiding a saw in its upward and downward movement was to cause the two ends of the cross-head, to which the upper end was attached, to slide in straight grooves, or guides. The lower end of the saw was guided in the same manner, and to the lower cross-head was attached by a pivot the lever, or pitman, worked by the crank of the driving-wheel. This arrangement gave the saw a straight and uniform motion, up and down, between the guide-posts of the frame in which it worked, either perpendicular or at a slight inclination, according to the position of the guide posts.

In Hamilton's improvement the guiding grooves for the upper end of the saw are curved, with the concave part of the curve turned towards the approaching log, so that, as the saw descends, the top part at first retreats before the log, and afterwards moves up towards it at the same time that the bottom part is moved back and forth in just the opposite directions by being attached to the pitman above the cross-head; the combined motions thus giving to the whole saw a kind of rocking or vibratory movement, by which the teeth take the most advantageous bite into the log, and all of them perform their proportional part of the work. The result is something like that produced by two men working a saw in a saw-pit.

The defendant is using a saw in which the guides are not curved, it is true; but they each consist of two straight lines that represent two consecutive cords of the curve in Hamilton's guides, and are arranged in other respects in the same manner as this curve, namely: having the interior angle, like the concave side of the curve, turned towards the approaching log, the effect being exactly the same.

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Hamilton (a) also connects the lower end of his saw to the pitman below the cross-head, instead of above it; but by reversing the motion of his crank, or driving-wheel, he produces exactly the same combination of movements as those produced by Hamilton, the one being the exact equivalent of the other; and, if Hamilton's patent was for the result, the infringement would be so perfect as to amount to a mere copy of the invention. But Hamilton does not claim the result. He could not do it; for, as he says, the same result was effected by two men when sawing in a pit. His claim is, "giving to the saw in its downward movement a rocking or rolling motion *by means* of the combination," etc., that is not the rocking motion itself, but the *means* devised by him for producing it.

The question in the case, therefore, is, whether the defendants use the same or equivalent means; that is, the same, or substantially the same, combination of mechanical devices.

The substitution of guides at the top, made crooked by a broken line instead of a curved line, is too transparent an imitation to need a moment's consideration. A curve itself is often treated, even in mathematical science, as consisting of a succession of very short straight lines, or as one broken line, constantly changing its direction; and many beautiful theorems were evolved by the early mathematicians on this hypothesis. At all events, in mechanics, when, as in this case, a broken line is used instead of a regular curve, being deflected at one or more points by a very slight angle, and performing precisely the same office as a curve similarly situated, the one is clearly the equivalent of the other.

The attaching of the lower end of the saw to the pitman below the cross-head instead of above it, and thereby getting the same movement as before by reversing the motion

92 U. S. 430-431.

(a) Otto substituted for "Hamilton," "He."

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of the crank, is no change in principle. This is too obvious for discussion.

The combination of the two things in the defendants' mill, namely: the crooked guides above, and the connection of the saw with the pitman below at a point removed from its center of motion, both being calculated to give to the saw the precise rocking or vibratory motion desired, is a close copy of the plaintiff's invention; quite as close as is usually made by those who attempt to evade a patent whilst they seek to use the substance of the invention.

The defendants insist, however, that Hamilton's patent is defective for not clearly describing the position, perpendicular or otherwise, in which the curved guides should be placed; and that, if any required position can be inferred from the patent, it is a perpendicular one, whilst the guides of the defendants' saw are inclined at a slight angle to the perpendicular. As to the alleged defect of the patent, there is nothing in the objection. The invention claimed is an improvement on an old machine, and it is properly taken for granted that the practical mechanic is acquainted with the construction of the machine in which the improvement is made; and nothing appears in the case to show that any peculiar position different from that of saw-mills constructed in the ordinary way is necessary to render it effective and useful. The essence of the improvement has nothing to do with the precise position of the guides. It is a combination of mechanical means to produce a rocking motion of the saw; and this combination is just as applicable to guides that have a slight inclination as to guides that are perpendicular. We think that there is no ground for either branch of the objection. The description in the patent is sufficiently specific; and the inclination of the defendants' guides cannot exempt them from the charge of infringement.

The complaint made by the defendants, that the patent is defective in not stating the nature of the curve for the

Notes and Citations.

guides, whether that of a circle or of some other figure in view of the subject-matter of the improvement and of the diagrams annexed to the patent, are not sufficient to affect its validity. Any good mechanic acquainted with the construction of saw-mills, and having the patent and diagram before him, would have no difficulty in adopting the improvement, and making suitable curves.

The conclusions to which we have come are decisive of the case. It is unnecessary to discuss in detail the different points made at the trial, or the several instructions asked. We have examined them all, and find nothing on which to base a judgment of reversal. If Straub's patent would have revealed anything to affect the validity of Hamilton's, the parties did not see fit to spread it on the record; and, therefore, we have no means of deciding that question.

The judgment is affirmed.

92 U. S. 432.

Notes:**3. Sufficient description of an improvement:**

Evans v. Eaton, 7 Wheat. 356 [4 Am. & Eng. 105].

Hogg v. Emerson, 6 How. 437 [5 Am. & Eng. 1].

Corn Planter Patent, 23 Wall. 181 [p. 1 *ante.*]

Parks v. Booth, 102 U. S. 96.

Patent in Suit:

No. 51,310. Hamilton, P. December 5, 1865. Saw-Mill.

OTHER SUITS ON SAME PATENT:

Hamilton v. Ives, 1873. 6 Fish. 244; 3 O. G. 30.

Hamilton v. Rollins, 1877. 5 Dill. 495; 3 Ban. & Ard. 157.

Notes and Citations,

Hamilton v. Kingsbury, 1878. 15 Blatch. 64; 3 Ban. & Ard. 346;
14 O. G. 448.

Hamilton v. Kingsbury, 1879. 17 Blatch. 264; 4 Ban. & Ard. 615;
17 O. G. 147.

Hamilton v. Kingsbury, 1880. 17 Blatch. 460; 5 Ban. & Ard. 157;
17 O. G. 847.

Cited:

IN SUPREME COURT IN:

Gage v. Herring, 1883. 107 U. S. 610; Bk. 27 L. ed. 601.

IN CIRCUIT COURTS IN:

Hamilton v. Rollins, December, 1877. 5 Dill. 495; 3 Ban. & Ard.
157.

Thompson v. Gildersleeve, February, 1888. 34 Fed. Rep. 43; 43
O. G. 886.

IN TEXT-BOOKS:

2 Abb. Pat. Law. 1886, p. 453.

Walker on Pats., 1883, p. 266.

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WILLIAM BURDELL ET AL., PLAINTIFFS IN ERROR,
v. AUGUSTUS DENIG ET AL.*

92 (2 Otto) U. S. 716-723. Oct. Term, 1875.

[Bk. 23, L. ed. 764.]

Reversing *Ibid.* 2 Fish. 588.

Argued April 12, 1876. Decided May 8, 1876.

*Measure of damages. Profits. License fee. Royalty. Contract.
Evidence. Instruction to jury.*

1. In cases where profits are the proper measure of damages it is the profits which the infringer makes or ought to make, which govern, and not the profits which plaintiff can show he might have made. The rule of profits applies to mainly cases in equity, upon the idea that the infringer is a trustee for the profits for the owner. (p. 426.)
2. The primary and true criterion of damages in an action at law is the sales of licenses of machines, or an established royalty. (p. 426.)
3. A particular instrument construed to be a contract and not a revocable power of attorney. (p. 427.)
4. A receipt executed after suit brought, held properly admitted in evidence to reduce the amount of the recovery. (p. 427.)
5. Where on the giving of evidence tending to prove disputed facts, the court instructed the jury that they had been proved, the judgment was reversed on the ground alone that the court had assumed a function which belonged to the jury. (p. 429.)

[Citations in opinion of the court.]

Packet Co. v. Sickles, 19 Wall. 617 [9 Am. & Eng. 280]. p. 427.

In error to the Circuit Court of the United States for the Southern District of Ohio.

The case is stated in the opinion. The paper therein referred to, as to be inserted by the reporter, is as follows:

“Article of agreement made and entered into, this thir-

*See Explanation of Notes, page III.

Statement of the case.

teenth day of March, 1860, between Sarah Burdell, of the county of Franklin, in the State of Ohio, and H. Crary of the same county, witnesseth,

“That said Sarah Burdell does hereby authorize and empower the said Crary, for the full term of four years and eight months or from the date hereof, until the 12th day of November, 1864, as fully and completely as she might herself, had not this agreement been entered into, to sell and use and grant to others the right to use, in the said county of Franklin, A. B. Wilson’s sewing-machines, as known and denominated for sewing cloth and other fabric, patented November 12, 1850, and reissued January 22 and December 9, 1856, and also, the sewing-machine patented by J. M. Singer, together with all the improvements which have been made already or shall hereafter be made in the same, without additional cost; and also, all other sewing-machines of every name and description to which the said Sarah may have power to exercise any control whatever, and the said Sarah hereby covenants and agrees with the said Crary, that, during the said term of four years and eight months, she will not sell or use or grant to others the right to sell or use in the said county of Franklin, the sewing machines above specified or any other of any name, or kind or description, without the consent of said Crary.

“2. That the said Crary agrees to make out and deliver to the said Sarah Burdell or her authorized agent or attorney, on the first day of each and every month, a full and accurate report of all sales of sewing-machines of every name, kind and quality, made by him or his agents, during the preceding month, stating the first cost of such machine in the purchase of the same from manufacturers or their agents, until ready for shipping, exclusive of freight and other incidental charges; also, the price at which such machine was sold by said Crary or his agent; and stating, also, the difference between the said first cost of said machine and the price at which the same was sold, and of which difference for the preceding month, on the first day

Statement of the case.

of each month, when the said report is delivered as aforesaid, the said Crary agrees to pay the said Sarah Burdell or her authorized agent or attorney, thirty-five per centum during the first six months from the date hereof, and forty per centum thereafter, or until the twelfth of November, 1864; provided, however, if the said percentage for any one month during the first four months from the date hereof, should not amount to the sum of seventy-five dollars, the said Crary agrees to make it up to the full sum of seventy-five dollars, and the said Sarah agrees that for any such deficiency or difference between the said percentage and the sum of seventy-five dollars, the said Crary may reimburse himself out of the first excess of said percentage over one hundred dollars after the expiration of the said four months from the date hereof.

"3. It is agreed by the said Sarah Burdell and the said Crary, that, in the prosecution of an injunction to restrain or prevent the sale or use of any sewing machine in said county of Franklin, in violation of the right, power and authority hereby vested in the said Crary to sell or use such machine in said county, and in the prosecution of any suit at law for the recovery of damages for the sale hereafter, or for the use of any such sewing-machine hereafter sold, the costs and expense of any such suit at law or in equity shall be equally borne by the said Sarah and the said Crary, each paying one-half of such costs and expenses, and each sharing equally, that is, each being entitled to one-half of the net amount received in any such proceedings at law or in equity; provided, that no such injunction shall be applied for, or any such suit at law instituted, without the consent of both parties to this agreement; provided, also, that, for the purpose of prosecuting any such suit at law, that may be agreed upon by the parties hereto, the power and authority herein vested in the said Crary shall remain and continue in full force and effect after the expiration of said term of four years and eight months; provided, also, that, in any suits or pro-

Argument of counsel.

ceedings at law or in equity, which the said Sarah may see fit to institute on account of the use hereafter of any sewing-machine hereafter sold, the said Crary shall not be required to defray any portion of the costs and expenses, or be entitled to any share of the amount so recovered in any suit or proceedings so instituted, as last aforesaid by said Sarah.

"4. It is agreed that the first report of sales herein provided for, shall be made on the 1st day of May next, and shall include all sales of sewing-machines from this date until the said 1st day of May.

"Witness our hands and seals, this thirteenth day of March, 1860.

"(Signed) SARAH BURDELL. [SEAL.]
H. CRARY. [SEAL.]

"In presence of
"FRANKLIN GALE."

Mr. William Lawrence, for plaintiffs in error:

The court below erred in the charge as to the rule of damages and as to the competency and effect of evidence on that subject. No evidence was offered to prove a general or "established" license price or fee, or "customary charge" for the use of any machine.

The court erred in admitting in evidence proof of two isolated licenses and the fee exacted therefor. There is no "one rule of damages which will equally apply to all cases." *Seymour v. McCormick*, 16 How. 480 [6 Am. & Eng. 200].

But the *general rule* of damages is the "profits" made by defendants by the use of the patent.

Curtis on Patents, 4th ed. § 388; *Lowell v. Lewis*, 1 Mas. 184; *Whittemore v. Cutter*, 1 Gall. 429; *Pitts v. Hall*, 2 Blatch. 229; *Wilbur v. Beecher*, 2 Blatch. 132.

This is the rule in England, *Elwood v. Christy*, 18 C. B. N. S. 494; *Law's Digest Patent Cases*, 240, § 106; *Coleman v. Liesor*; *Seymour v. McCormick*, 16 How. 480 [6 Am. & Eng. 200]; *Livingston v. Jones*, 2 Fish. 209; *Sand-*

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ers v. Logan, 2 Fish. 168; Hall v. Wiles, 2 Blatch. 194; Hilliard on Remedies for Torts, 631.

If this general rule of damages can be excluded in any such case as this, it is only when it is clearly shown that there is a regularly "*established license fee*."

In Suffolk Co. v. Hayden, 3 Wall. 315 [7 Am. & Eng. 405], the court say: "There being no *established* patent or license fee in the case, in order to get at a fair measure of damages, or even an approximation to it, general evidence must necessarily be resorted to."

But conceding for the present that the rule of "profits" may be changed by proof to a "license fee," the question is by what kind of evidence?

Clearly not by evidence of two *isolated* licenses for a nominal consideration.

If a license fee can govern, it must be a *general established* one. This can only be proved by evidence showing what is the *general established* fee.

The *general price* may be evidence of *value*. But the price in a *particular* case is not evidence of either price or value. For this reason *special sales* constitute *no element of evidence*.

The court erred in charging that the Burdell & Crary letter of attorney of March 13, 1860, was not revocable. The general rule is, that the powers of an agent are revocable unless "coupled with an interest," and the Crary power was not "coupled with an interest." Crary was not a purchaser, nor a grantee, nor an assignee. He could not sell in his own name. He could only act in the name and for his principal. But if this could be held to be a "power coupled with an interest," it is a power the right to exercise which depends on the performance of conditions by Crary in which he failed, *thereby* authorizing a *rescission*.

In 3 Parsons on Contracts, 679 (6th ed.), it is said that "generally where one fails to perform his part of the contract, the other party may treat the contract as rescinded."

Opinion of the court.

Messrs. George Gifford and S. S. Fisher, for defendants in error:

The agreement between Burdell and Crary of the 13th March, 1860, was a mutual agreement, containing mutual covenants. The rights granted to Crary, coupled with the covenant of Burdell not to sell, use, or grant others the right to sell or use, was equivalent, to an assignment of the patent to Crary. If considered in the light of a power, it was the grant of a power protected by a covenant which constituted an interest in the patent. Burdell could not divest himself of his obligation under his covenant, nor by notice of revocation reinvest himself with the right conveyed to Crary. The instrument was a license and it was unconditional.

A failure of one of the parties to such an agreement, to perform his covenant does not authorize the other party to rescind the agreement. 2 Parsons on Contracts, 6th ed. 527, and cases there cited. Also pages 676, 678 and cases there cited.

Mr. Justice MILLER delivered the opinion of the court:

The plaintiffs in error were plaintiffs in the Circuit Court in an action for an infringement of the patent of A. B. Wilson, for a feeding device in sewing-machines. They recovered a judgment for \$125, but insist that they were entitled to a much larger judgment, of which they were deprived by the rulings of the court in the progress of the trial.

The objections to these rulings will be considered by us under three heads, to which all the assignments of error relate.

1. As to the measure of damages.

Evidence was given tending to prove that plaintiffs had advertised to sell their machines, and had actually sold a shop-right to use one of them for \$12.50, and had given a verbal license to another person to use an old machine in

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his house for \$5, but afterwards refused to sell or license for Franklin County, and told defendants they desired to retain the use of the machine as a close monopoly. Evidence had also been given as to profits made by defendants. On this testimony they asked the court to instruct the jury that "This testimony was not sufficient to change the rule of damages from the profits which plaintiffs would have made if they had not been embarrassed by the interference of the defendants, to a mere license price, because they do not establish a customary charge for the right to use the invention in Franklin County," which the court refused.

There are two sufficient objections to this prayer:

In cases where profits are the proper measure, it is the profits which the *infringer* makes, or ought to make, which govern, and not the profits which *plaintiff* can show that *he* might have made.

Second. Profits are not the primary or true criterion of damages for infringement in an action at law. That rule applies eminently and mainly to cases in equity, and is based upon the idea that the infringer shall be converted into a trustee, as to those profits, for the owner of the patent which he infringes;—a principle which it is very difficult to apply in a trial before a jury, but quite appropriate on a reference to a master, who can examine defendant's books and papers, and examine him on oath, as well

" " " " " " " " " " " "

Opinion of the court.

party might have made is the primary or controlling measure of damages. *Packet Co. v. Sickles*, 19 Wall. 617 [9 Am. & Eng. 280].

2. A paper was introduced in evidence by defendants, signed Sarah Burdell, authorizing H. Crary, for the full term of four years, to sell, use and grant to others the right to use, in said county of Franklin, A. B. Wilson's sewing-machines. It was agreed that the paper should have the same effect as if signed by William Burdell and the other plaintiffs in whom the title was when it was executed. It is too long a paper to insert here, but will be given *verbatim* by the reporter ; and its true construction is the foundation of the alleged error of the court in admitting it, and also in admitting a receipt given to the defendants by said Crary for the use of four of the machines for which they were sued.

It is claimed that the instrument is but a power of attorney revocable at the pleasure of the maker, and that it was so revoked before the receipt given in evidence was executed by Crary.

But we are of a different opinion. We think the instrument is a contract. That Crary acquired rights under it for four years, which, whether he may have so acted or not as to enable plaintiffs to have it rescinded or set aside in a suit in chancery, could not be revoked at their mere volition ; and that these rights were such that his receipt for the use of the four machines mentioned in it was a valid acquittance of any claim for the same thing by plaintiffs in this suit.

It is said that the court erred in admitting the receipt in bar of the action, because it was executed after the suit was brought, and could not be so used without a special plea setting it up.

The fallacy of this argument consists in assuming that it was introduced as a bar to the action. It was only used to reduce the amount of the recovery, and not as a complete bar ; and as it excluded from the computation of damages

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only four machines out of a larger number, it was admissible under the general issue, or any other form of plea which left the amount of the recovery in dispute.

We see no error in this branch of the case.

3. The defendants introduced also the following paper, and gave evidence of an assignment by Lowe to Singer & Co., and of a license from Singer & Co. to defendants:

"In consideration of the sum of eighty dollars, to me paid by J. Payne Lowe, the receipt whereof is acknowledged, I do hereby assign, transfer and set over unto the said Lowe, his representatives and assigns, the exclusive right to use, and sell to others to be used, in the county of Franklin, in the State of Ohio, Singer's patent sewing-machines, as mentioned in the patent granted to Isaac M. Singer, dated August 12, 1851, together with the right to have the said machines delivered to be used, or sold to be used, in the said county of Franklin, in the State of Ohio.

"And I hereby covenant that I have good right to make the assignment aforesaid.

"In witness whereof I have hereunto set my hand and seal, this fourth day of February, A. D. 1857.

• "WM. BURDELL. [SEAL.]"

Evidence was also given tending to show that the machines called Singer machines, used by the defendants, were made as Singer machines had always been made.

And after all the testimony was closed, the plaintiff asked the court to instruct the jury that the license of Burdell to J. Payne Lowe, of the 4th of February, 1857, did not authorize him, and those deriving rights under that license, to use, in the machine known and called Singer machine, in said county of Franklin, the feeding device patented to A. B. Wilson; which the court refused to give, but did charge the jury that the said license authorized the said Lowe, and all claiming title from him, to use in Franklin county the Singer machine, with a feeding device operating upon the principle and plan of that patented

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to Wilson; to which refusal of the court to charge as asked, and to the said charge as given, the plaintiffs then and there excepted.

In defense of this ruling, it is said that Burdell never had any interest in the Singer patent; that the instrument called the Singer machine, which was in use when Burdell made the above assignment to Lowe, was a Singer machine with the Wilson feeding device; and that, as Burdell did own the patent for this device, what he intended to assign was the right to use the Singer machine *with that device*. It is certainly true, that, in construing a written instrument, it is necessary and admissible to look to all the surrounding circumstances of the transaction which are necessary to discover its meaning. And it may be admitted that, if the facts above stated were conceded to be true, it would follow that the reasonable construction of the contract would be such as the court held it to be. The refusal of the court to give the instruction asked by counsel for plaintiffs was, therefore, justifiable.

But these facts were not conceded by plaintiffs. Nor does the bill of exceptions say that they were proved. It says nothing at all about Burdell's interest or want of interest in the Singer patent; and in regard to use of the Wilson feeding device in the Singer machine, it says no more than that there was evidence *tending* to prove that it had always been so used in all these machines.

If these things were not proved, then there was no ground for the construction of the contract given by the court, and whether they were proved or not, was a matter for the jury and not for the court to decide. The jury may not have believed the witnesses; or, if believed, may not have found that their testimony established what the bill of exceptions declares it tended to prove. The court, therefore, in telling the jury peremptorily, on this testimony, that the license to Lowe did authorize him to use the Singer machine with a feeding device operating upon

Notes and Citations.

Root v. Railway, 105 U. S. 189.

Clark v. Wooster, 119 U. S. 322.

Patent in suit:

No. 7,776. Wilson, A. B. November 12, 1850. Reissue No. 346. January 22, 1856. Reissue No. 414. December 9, 1856. Sewing Machine.

OTHER SUITS ON SAME PATENT:

Wilson v. Barnum, 1849. 1 Wall. Jr., 347; 2 Robb, 749.
Potter v. Holland, 1858. 4 Blatch. 206.
Potter v. Holland, 1858. 4 Blatch. 241.
Potter v. Wilson, 1860. 2 Fish. 102.
Grover & Baker Sewing Machine Co. v. Sloat, 1860. 2 Fish. 112.
Potter v. Stevens, 1861. 2 Fish. 163.
Potter v. Fuller, 1862. 2 Fish. 251.
Potter v. Muller, 1864. 2 Fish. 465.
Burdell v. Denig, 1865. 2 Fish. 588.
Potter v. Muller, 1865. 1 Bond, 601; 2 Fish. 631.
Potter v. Crowell, 1866. 1 Abb. 89; 3 Fish. 112.
Potter v. Schenck, 1866. 1 Biss. 515; 3 Fish. 82.
Potter v. Davis Sewing Machine Co., 1868. 3 Fish. 472.
Potter v. Empire Sewing Machine Co., 1868. 3 Fish. 474.
Potter v. Mack, 1868. 3 Fish. 428.
Florence Sewing Machine Co. v. Singer Sewing Machine Co., 1870. 8 Blatch. 113; 4 Fish. 329.
Florence Sewing Machine Co. v. Singer Mnfg. Co., 1871. 8 Blatch. 177; 4 Fish. 348.
Burdell v. Comstock, 1883. 15 Fed. Rep. 395; 15 Rep. 742.
Burdell v. Denig, 1883. 15 Fed. Rep. 397.

Notes and Citations.

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IN SUPREME COURT IN :

Birdsall v. Coolidge, 1876. 93 U. S. 64; Bk. 23, L. ed. 802.
Root v. L. S. & M. S. R. Co., 1882. 105 U. S. 189; Bk. 26, L. ed. 975.
Tilghman v. Proctor, 1888. 125 U. S. 136; Bk. 31 L. ed. 664.

IN CIRCUIT COURTS IN :

Black v. Munson, June, 1877. 14 Blatch. 265; 2 Ban. & Ard. 623.
Vaughn v. Cen. Pac. R. R. Co., August, 1877. 4 Sawy. 280; 3 Ban. & Ard. 27.
Knox v. Great Western Quicksilver Mining Co., November, 1878. 6 Sawy. 430; 4 Ban. & Ard. 25; 7 Reporter, 325; 14 O. G. 897.
Sayles v. R. F. & P. R. R. Co., April, 1879. 3 Hughes, 172; 4 Ban. & Ard. 239; 16 O. G. 43; 7 Reporter, 743.
Greenleaf v. Yale Lock Mnfg. Co., October, 1879. 17 Blatch. 253; 4 Ban. & Ard. 583; 17 O. G. 625.
Emigh v. B. & O. R. Co., March, 1881. 4 Hughes, 271; 6 Fed. Rep. 283.
Goddard v. Wilde, May, 1883; 17 Fed. Rep. 845.
Keller v. Stolzenbach, July, 1886. 28 Fed. Rep. 81.
Everest v. Buffalo Lubricating Oil Co., July, 1887. 31 Fed. Rep. 742.

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ANDREW H. HAMMOND ET AL., APPELLANTS, v.
THE MASON AND HAMLIN ORGAN COMPANY.*

92 (2 Otto) U. S. 724-728. Oct. Term, 1875.

[Bk. 28, L. ed. 767.]

Affirming *Ibid.* 1 Holmes 296.

Argued April 21, 1876. Decided May 8, 1876.

Contract. Particular contract construed. Sale of right under unpatented invention.

1. Where in a certain contract "the said parties," L., on the one hand, and M. and H. on the other, bound themselves mutually and their "legal representatives to the covenants therein," to continue in force till the expiration of the term of certain letters patent or "during such period as the same may be hereinafter renewed or extended," held that L. having treated the defendant corporation as successors to M. and H., it was entitled to the benefit of the contract and to the use thereunder of a particular device under the extension of the original patent now assigned to plaintiff. (p. 441.)
2. Where an inventor made several agreements on the same day with the defendants; in the one wholly selling his unpatented invention, the patent to issue to defendants; in another licensing the use of the invention in connection with his (inventor's) former patents; and in the third granting defendant certain right on failure to secure the patent, held they should be all construed together and that defendants were protected thereunder from liability as infringers. (p. 442.)
3. Right growing out of an unpatented invention may be sold. (p. 442.)

Appeal from the Circuit Court of the United States for the District of Massachusetts.

The case is stated by the court.

Mr. B. E. Valentine, for appellants:

We shall base our argument to show the error of the

*See Explanation of Notes, page III.

Argument of counsel.

court below, on certain firmly established and undisputable principles of law which are so well settled that we may call them axioms.

First. "There is no artificial rule in construing a contract, and effect, if possible, is to be given to every part of it, in order to ascertain the meaning of the parties to it. An assignment of an interest in an invention secured by letters patent is a contract, and like all other contracts is to be construed so as to carry out the *intention* of the parties to it."

Nicholson Pavement Co. v. Jenkins, 14 Wall. 452 [8 Am. & Eng. 516].

The court below erred in its decision by saying of the defendants that "their right is not limited to the terms of the original patents embracing the parts of the combination * * * they had the right to use the specific mechanism—their exclusive right under the patents might end with the expiration of the term of the old patents, but their right was *independent of their existence* or duration."

Second. Where upon an agreement between two parties, their mutual undertakings are embodied in two or more instruments simultaneously executed, in determining the rights and intentions of the parties, the several instruments must be *construed together* as one entire contract, and no one instrument can be singled out, and broad rights claimed under it as unaffected by conditions or restrictions in the other simultaneously executed instruments.

Cornell v. Todd, 2 Denio, 130; Jackson v. Dunsbagh, 1 Johns. Cas. 92; Craig v. Wells, 11 N. Y. 315; Hull v. Adams, 1 Hill, 601.

But giving the three assignments full effect, either singly or together, no right passed to the defendants under the letters patent in question except during the *original term* thereof.

Third. A grantee or licensee of a right to make or sell under the original term of the patent acquires no rights to

Argument of counsel.

and useful improvement has no exclusive right to it until he obtains a patent. This right is created by the patent."

Gayler v. Wilder, 10 How. 493 [5 Am. & Eng. 188].

Fifth. The owner of an *improvement* cannot take possession of the *invention improved upon*. He must obtain a license under the prior patent to use the improvement, or await the expiration of the older patent.

Colt v. Mass. Arms Co., 1 Fish. 108.

Mr. F. H. Betts, for appellee:

Louis made an invention of the combination of a fan tremolo with a rotary wind-wheel, and that he applied for a patent for such combination. Having invented this combination, and having on the 25th of September, 1868, made an application for a patent therefor, he, on that same day, entered into three agreements with the defendants.

The first was an absolute conveyance to the defendants of all his "right, title and interest in and to said invention and letters patent which may issue therefor."

The second of said agreements grants to said Mason & Hamlin Organ Co. "the right to make, use and sell the *invention* (assigned to them, and which they have since used and are now using) * * * in connection with so much of the inventions secured by the letters patent as is contained in said mechanism, until the expiration of the term for which the said letters patent (for which application was then about to be made) * * * shall be granted."

The third agreement contemplates and provides for the case of the *failure* of the Mason & Hamlin Organ Co. to obtain a patent for the invention of 1838; which is the case as it actually happened and now exists. In case the application is refused, Louis grants to the Mason & Hamlin Organ Co. "the *exclusive* right under the said letters patent already granted and under any, and all reissues thereof, to make, use and sell the *specific mechanism* described and set forth in the said executed application (of 1868) and in the specification, drawings and model accompanying the same."

And "authorizes and empowers" them "to prosecute and bring to final judgment * * * all persons * * * violating or infringing" their "exclusive right" to the said "mechanism."

The refusal of the Patent Office to patent this invention destroys not the *right* of Mason & Hamlin in the same, but the *exclusiveness* of their right. The agreement is not thereby annulled; still less is the agreement, Exhibit C, affected.

The complainants are seeking to read the agreement which contains no limitation of the *general* right to use the specific mechanism referred to in it, as if it contained a clause to this effect, "but whenever the original term of the patent of November 18, 1856, shall expire, *all* right to use the invention assigned in exhibit C, shall cease, and *all* right to manufacture and sell said invention under the patent of June 10, 1862, shall cease likewise."

This clause imposing a forfeiture of rights absolutely granted by another agreement will not be supplied by construction, not only because forfeitures are never implied, but because the intent of the agreement, as we have seen, is plainly otherwise.

It would require very strong words to carry the construction that a man intended to *absolutely* grant an invention by one agreement, and on the same day by another agreement, prohibit its use by the grantee after two years.

The law leans very strongly against all conditions and restrictions in an absolute grant which are inconsistent with such absolute grant, certainly they will not supply such conditions and restrictions by forced constructions when none such in fact exist.

The appellants seek to maintain that the agreement which conveyed to the defendants the "invention and letters patent which may issue therefor," really conveyed *nothing at all*, because no letters patent were in fact granted, and that there is no such thing as an "invention" which can be conveyed apart from letters patent. To this

Opinion of the court.

we reply first—that neither a grantor, nor those claiming under him, can be heard to assert that nothing passed by his grant.

Van Rensaeller v. Kerney, 11 How. 297; Clark v. Crego, 47 Barb. 599.

And, second—that property in an invention which may be the subject of contract and sale, is perfectly plain and well recognized. An “invention” is the conception and practical embodiment of a useful idea.

The law recognizes a man’s title in an invention apart from letters patent, by providing that he may use and sell it for two years before applying for a patent. Property in an invention, as distinct from property in letters patent, is as clear as is that in literary composition as distinct from copyright. It is even true that an invention which is not *new*, and letters patent which are void, may be the subject of valid contract of sale.

Taylor v. Hare, Davis, P. C. 307.

The fact that an “invention” is something broader and different from letters patent, is recognized in nearly every case cited by the appellants.

Mr. Justice MILLER delivered the opinion of the court :

On the 18th day of November, 1856, a patent issued to Lafayette Louis for an invention which produced a tremolo in the musical notes of melodeons or reed instruments, and which has since become known as the tremolo attachment. Louis surrendered and obtained reissues of this patent on the 26th day of February, 1867, and again on the 26th day of May, 1868; and after his death his wife, who was his administratrix, obtained in July, 1871, what appears to have been both a reissue and a renewal for seven years, of the same patent, the whole right in which she assigned to plaintiffs May 30, 1872.

Whereupon the present suit, which is a bill in chancery, is brought against the defendants, as infringers, for an injunction and for an account of profits, and other relief.

Opinion of the court.

The defendants not denying the allegation of the use of the invention, interpose a plea; and on this plea the case was heard and a decree rendered dismissing the bill.

The plea sets up the right to use the invention described in the reissued patent of 1872, in defendants, as shown by five several written instruments, signed by Louis in his lifetime, which were made parts of the plea as exhibits A, B, C, D and E.

The first of these is a contract between said Louis and Henry Mason and Emmons Hamlin, for the use by the latter in their melodeons, of the original invention of Louis, and is dated April 10, 1861. Exhibit B is a copy of an application by Louis for a patent for an improvement in his tremolo attachment, with the accompanying specifications, and is dated September 25, 1868. Exhibits C, D and E are all dated the same day as this application, and are contracts between said Louis and the Mason and Hamlin Organ Company for the sale of this improvement, and its use in connection with the invention already patented in 1856, and reissued in 1867 and 1868.

Exhibit A is a contract by which Louis agrees to furnish to Mason and Hamlin his patent tremolo attachment in such numbers and as they may order them, at \$1 for each attachment; and if he fails to furnish them as ordered, Mason and Hamlin are licensed to make, use and sell the same in connection with all musical instruments manufactured by them anywhere in the United States. The closing paragraph of this contract declares that "The said parties mutually bind themselves and their legal representatives to the covenants and agreements herein contained, to continue in force until the full expiration of the term for which said letters patent have been granted, and during such period as the same may be hereafter renewed or extended."

It is not alleged that any of the subsequent contracts abrogated this one. It cannot be denied that this contract

Opinion of the court.

extends to the renewal of the patent which was assigned to plaintiffs. The only question on this branch of the plea is, whether the Mason and Hamlin Organ Company are entitled to the rights of Mason and Hamlin.

As the case was decided on the sufficiency of the plea, its allegations must be taken as true; and all that can be reasonably inferred from those allegations and from the various exhibits which it makes, must also be held to be true. The plea does allege that the defendants are "The legal representatives and successors, and assignees in business and interest, of said Mason and Hamlin." This allegation seems to be full and specific; and the only doubt of its sufficiency arises as to whether the legal representatives spoken of in the agreement, are or can be others than executors, administrators, or heirs. Whatever doubt might be entertained on this point, we think is solved by the fact that Louis, in the subsequent contracts of 1868, seems throughout to treat with the corporation as successors of Mason and Hamlin in the contract of 1861. For in exhibit E he sells and assigns to the company the exclusive right to use his supposed improvement under the patent of 1856 and all the subsequent reissues, and as this new improvement required the use of the old, he seems here to recognize the right of the company to control the license he had previously granted to Mason and Hamlin.

We are of opinion, therefore, that the defendant corporation is entitled to the benefit of the contract between Mason and Hamlin, covered by exhibit A, and that this gives them the right to use the attachment under the extension of the original patent now assigned to plaintiffs.

It is said that defendants never demanded these attachments and, therefore, they had no right to make them.

But the allegation is full, that Louis at all times refused to manufacture and furnish the attachment to defendants, and we think under the contract this authorized them to make them for themselves.

Opinion of the court.

The court below, however, rested its decision on another ground, which we think equally conclusive.

As we have already said, Louis signed these contracts with the defendant company on the same day that he made his application for a patent for his improvement in the tremolo. The supposed improvement consisted in a different construction of the parts already patented by him. By the first contract (exhibit C), he sold to the defendant this invention wholly, and authorized the patent to issue to the company. By the second (exhibit D), he licensed them to use this new invention or improvement in connection with his former patents, and in connection with a patent of his of 1862 for an improvement in pianos with melodeon attachments; and the company agreed to pay him a royalty of \$1 each for his new tremolo attachment, at an average of forty attachments per month. The third contract (exhibit E), provides that if the company fail in securing a patent for the improvement sold to them, referring to his original patent and reissues and to his sale of the later invention, and his claim to use it in connection with the old patents, he grants to the defendants the exclusive right, under the letters patent already granted, and under any and all reissues thereof, to make, use and sell the specific mechanism described and set forth in the application for the new patent.

Without elaborating this matter, we concur in the opinion of the Circuit Court, that Louis, having sold this invention, and doubt existing whether the purchasers would obtain a patent for it, intended by this contract and by exhibit D to secure to them the benefit of the exclusive use of that invention, in connection with his first mechanism, so long as the latter was protected by any patent founded on his right as inventor. It was this use for which defendants are sued in this case.

While it is, perhaps, not necessary to decide whether in any case a sale of an invention which is never patented

Notes and Citations.

carries with it anything of value, we are of opinion that the rights growing out of an invention may be sold, and that in the present case the sale, with the right to use it in connection with the existing patent and its reissues or renewals, protects defendants from liability as infringers.

The decree of the Circuit Court is affirmed.

92 U. S. 728.

Notes:

3. Assignment prior to patenting:

Gayler v. Wilder, 10 How. 477 [5 Am. & Eng. 188].

Railroad Co. v. Trimble, 10 Wall. 367 [8 Am. & Eng. 261].

Littlefield v. Perry, 21 Wall. 205 [9 Am. & Eng. 446].

Hendrie v. Sayles, 98 U. S. 546.

Patent in suit:

No. 16,094. Louis, L. November 18, 1856. Melodeon.

OTHER SUITS ON SAME PATENT:

Hammond v. Mason & Hamlin Organ Co., 1873. 1 Holmes, 296;
6 Fish. 599; 5 O. G. 31.

Cited:

IN CIRCUIT COURTS IN :

Hammond v. Hunt, February, 1879. 4 Ban. & Ard. 111.

Notes and Citations.

IN TEXT BOOKS:

Walker on Pats., 1883, p. 225.

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Syllabus.

FREDERICK BIRDSALL ET AL., PLAINTIFFS IN ERROR, v. C. C. COOLIDGE.*

93 (3 Otto) U. S. 64-71. Oct. Term, 1876.

[Bk. 23, L. ed. 802; 10 O. G. 748.]

Submitted October 16, 1876. Decided October 30, 1876.

*Damages—actual—compensatory. Damages—at law and in equity.
Royalty as measure of damages.*

1. In an action at law for the infringement of a patent the jury is required to find the actual damages sustained by the plaintiff. The court has power in such case to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs. R. S. sec. 4919. (p. 447.)
2. Damages are given as a compensation, recompense, or satisfaction to the plaintiff for an injury actually received by him from the defendant. (p. 447.)
3. Compensatory damages and actual damages mean the same thing. (p. 447.)
4. Prior to the act of July 8, 1870, a patentee might proceed against an infringer either in equity or at law. In equity the infringer would be regarded as trustee of the owner of the patent as respects the gains and profits which he had made by the unlawful use of the invention. At law he could recover actual damages, the measure thereof being not what the defendants had gained, but what the plaintiff had lost. (p. 452.)
5. In proceedings against an infringer for damages the remedy at law (R. S. sec. 4919) remains unchanged, since the act of 1870, but in equity (R. S. sec. 4921), where the gains and profits are clearly not sufficient to compensate the complainant for the injury sustained by the infringement, damages of a compensatory character may also be allowed. (p. 453.)
6. Evidence of an established royalty will furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement, or

*See Explanation of Notes, page III.

Argument of counsel.

in the extensive and protracted use of the same, without palliation or excuse, but when the use is a limited one and for a brief period, it is error to apply that rule arbitrarily and without any qualification. (p. 454.)

[Citations in the opinion of the court:]

2 Greenleaf Ev. (10th ed.) sec. 253. p. 448.

Curtis Pat. (4th ed.) 461. p. 453.

Seymour v. McCormick, 16 How. 480 [6 Am. & Eng. 200]. p. 454.

Livingston v. Woodworth, 15 How. 546 [6 Am. & Eng. 167]. p. 454.

Dean v. Mason, 20 How. 198 [6 Am. & Eng. 361]. p. 454.

Curtis Pat. (4th ed.) 459. p. 454.

Packet Co. v. Sickles, 19 Wall. 611 [9 Am. & Eng. 280]. p. 455.

Burdell v. Denig, 92 U. S. 716 [p. 421, ante]. p. 455.

Suffolk Mfg. Co. v. Hayden, 3 Wall. 315 [7 Am. & Eng. 405]. p. 455.

In error to the Circuit Court of the United States for the District of Nevada.

The complaint in this case was filed in the court below by the defendant in error, to recover damages for the alleged infringement of a certain patent. Judgment having been given for the plaintiff, the defendant sued out this writ of error.

The case is fully stated by the court.

*Messrs. Beatty & Denson, Lewis & Deal and C. J. Hill-
yer, for plaintiffs in error:*

Upon the general proposition that the royalty in such cases is not always the proper measure of damage, we refer to the case of Seymour v. McCormick, 16 How. 480 [6 Am. & Eng. 200].

The court, when speaking of the royalty as the measure of damages, use this language: "There may be cases, as when the thing has been used for a short time, in which the jury should find less than that sum;" p. 490.

So, too, in the case of the Suffolk Mfg. Co. v. Hayden, 3 Wall. 315 [7 Am. & Eng. 405], the court uses this language: "It is proper to say, as was said in the court below, that the jury, in ascertaining the damages upon this evidence, is not to estimate them for the whole term of the

patent, but only for the period
covery does not vest the infringing
the use, as the consequence of
straining the defendant from the

Mr. A. H. Evans, for defendant.

The rule of damages laid down
ognized rule, as shown by numerous

Suffolk Mfg. Co. v. Hayden (

In the case of *Seymour v. M*
Am. & Eng. 200], this court, on
out dissent, laid down the proper
for infringement of patents, when
patentee had been sufficient to
licenses, that price should be the
damages against the infringer.

remained the established criterion
which it was applicable ever since

Packet Co. v. Sickles, 19 Wall.
Sickles v. Borden, 4 Blatchf.
Wall. Jr. 330.

Mr. Justice CLIFFORD delivered

Juries, in an action at law
patent, are required to find the
by the plaintiff in consequence
defendant. Power is given to the
enter judgment for any sum aban-
dict, not exceeding three times
together with costs; but the jury
their finding to the actual damage
sustained by the infringement.
at L. 123; R. S. sec. 4919 p. 96

Damages are given as a compensation
satisfaction to the plaintiff, for
by him from the defendant.

Opinion of the court.

actual damages mean the same thing ; that is, that the damages shall be the result of the injury alleged and proved, and that the amount awarded shall be precisely commensurate with the injury suffered, neither more nor less, whether the injury be to the person or estate of the complaining party. 2 Greenl. Ev. 10th ed. sec. 253.

Improvements in machines for amalgamating gold and silver were made by Zenas Wheeler, then in full life, for which he received letters patent in due form of law. Sufficient also appears to show that the patentee subsequently, to wit : on the 15th of August, 1869, departed this life ; that, at the time of his death, he was a resident of San Francisco, in the State of California, and that he left a last will and testament, duly executed, as required by the laws of that State ; that he gave, devised and bequeathed to the plaintiff all and singular his property, real and personal, wheresoever situated, including all debts owing to him, and all moneys belonging to him of which he might die seized and possessed, in trust for certain uses and purposes therein specifically set forth and described, leaving his patent rights, machinery and certain other specified interests in the hands of his executor, to be managed, controlled, improved, changed or disposed of as his executor may in his judgment deem best for the interests of the estate. Due probate of the will has since been made, and letters testamentary have been duly granted to the plaintiff, as sole executor of the deceased patentee.

Pursuant to the power vested in the plaintiff as such executor, he instituted the present suit, in which he alleges that the deceased testator was the original and first inventor of the improvement described in the patent, and that the defendants, though well knowing the premises, and in order to deprive the plaintiff of the gains and profits of the same, have, without license from the testator in his lifetime, or from the plaintiff since the decease of the testator, used and caused to be used twenty amalgamating machines,

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embracing substantially the same improvement, in violation and infringement of the exclusive right secured by the said letters patent.

Service was made; and the defendants appeared and pleaded the general issue, and gave notice of certain special defenses, as follows: (1) That the testator in his lifetime executed a license to J. Booth & Co., to manufacture the patented machine, and that the defendants purchased the machines they use of the licensees. (2) That the patented improvement has been openly and universally used by the public since the patent was granted. (3) That the curved grooves in the face of the muller and in the bottom of the pan had been previously patented to the respective parties named in the notice of special matter. (4) That the patentee was not the original and first inventor of the improvement. (5) That the curved grooves in the face of the muller and bottom of the pan were in public use more than two years before the alleged inventor made application for a patent. (6) That the patented improvements were described in the printed publications mentioned in the notice of special matter.

Reference to the specification will show that the patented improvement is called a new and improved gold and silver amalgamator and pulverizer, and that the object of the invention, as stated by the patentee, is to obtain a device of simple construction, which will cause a thorough incorporation of the quicksilver with the pulp containing the metal, so as to insure a perfect amalgamation of the latter. Mechanically considered, the invention consists in the arrangement of spiral ribs on the periphery of the rotary muller and spiral ribs reversed on the inner side of the pan, to operate in connection with curved grooves on the face or under side of the muller, and curved grooves reversed in the bottom of the pan, for the purpose explained.

These explanations are the same as those given in the

specification ; and the patentee also states, that the invention consists in the manner of connecting the muller to its shaft by a universal joint, so as to insure its parallelism with the bottom of the pan, and in the employment or use of curved plates, which are placed in the pan just above the muller, and arranged in such a manner as to be capable of being adjusted higher or lower, as set forth in the specification.

Two of the claims of the patent, to wit: the first and second, are omitted, as the plaintiff admits that those claims have not been infringed by the defendants. What he charges is, that they have infringed the third claim, which is as follows: "In combination with the muller and pan, the curved plates supported at their outer ends on slides, and at their inner ends in a frame, which is supported on the upper end of the shaft in such a manner that the plates will follow any adjustment of the muller, and thus bear the same relation to it, whether in its highest or lowest working position."

Viewed in the light of these suggestions, it is clear that the charge of infringement has respect chiefly to the curved plates supported, as explained, when used in combination with the muller and pan.

Subsequently the parties went to trial ; and the verdict and judgment were for the plaintiff, in sum of \$2,266.66, with costs of suit. Exceptions were duly filed by the defendants, and they sued out the present writ of error.

By the bill of exceptions, it appears that the plaintiff introduced his patent in evidence, together with a model of the patented machine for amalgamating gold and silver, and gave testimony tending to show that the defendants purchased twenty amalgamating pans, which contained wings or curved plates of iron twelve inches wide and fourteen inches long, fastened at one end to the inner side of the rim of the pans in a vertical position, in such a manner that they could be raised or depressed by sliding up or

Opinion of the court.

down in a groove or fastening, and could be adjusted at different heights, and extending lengthways towards the center of the pans, which were a little more than four feet in diameter.

Wings of the kind, however, were used in only sixteen of the pans for a few weeks after the defendants commenced to use the pans for amalgamating purposes; and the defendants testified that the wings were useless, and even detrimental, for working over old tailings, which was the work on which they were engaged, for the reason that such material does not require further grinding or pulverization; that, finding the wings useless or detrimental, they took them out of the sixteen pans, and sold them for old iron.

They also gave evidence tending to show that, when they used the mill as a quartz mill, they used the wings in sixteen only of the pans, but that when they commenced to work what are called tailings, they took out the wings, because they found them to be detrimental or useless; and the bill of exceptions also states that the defendants took the wings out of four of the pans before they used them at all, and only used the wings in some of the other pans for a short time, and that they did not use any of them more than six weeks; which is all the evidence introduced to show the extent of the infringement.

Wide differences of opinion existed between the parties as to the rule of damages in such a case; and, to aid in the solution of that question, the plaintiff introduced testimony tending to show that the decedent in his lifetime allowed manufacturers to make and sell the invention for a royalty of \$100, for a machine containing only the same combination as that used by the defendants, and proved that he, the plaintiff, had sold royalties to a large amount at the same rate.

Questions of various kinds, other than those relating to the measure of damages, are also presented in the bill of

• Opinion of the

question whether the defendant had committed unlawful acts, the measure of damages is not what the defendants had gained but what they had lost. Curtis Pat., 4th ed. 46

Where the suit is at law, the measure of damages remains unchanged to the present time, and that the verdict of the jury must be sustained by the plaintiff, subject to enter judgment thereon for any sum not exceeding three times that amount. 16 Stat. at L. 207.

Damages of a compensatory character are allowed to the complainant suing in equity where the gains and profits made by the defendant are clearly not sufficient to compensate for the injury sustained by the unlawful act. The right secured to him by the patent is the proper measure of damages in cases where the injury sustained is plainly greater than the aggregate of the gains and profits of the respondent; in which event the complainant "shall be entitled to have the profits to be accounted for by the defendant, and the damages he has sustained thereby."

Cases occurred under the Prior Patent Act where injustice was done to the complainant by withholding from him a just compensation for the injury he sustained by the unlawful infringement of his rights, even when the final decree was in his favor. Examples of the kind are given where the business of the infringer was so conducted that it did not yield any substantial profit, and where the products of the patent were sold greatly below their just and market value, and compel the owner of the patent, by the decree, to abandon the manufacture of the

IN TEXT BOOKS:

Walker on Pats., 1883, p. 225.

Notes and Citations.

the use is a limited one and for a brief period, as in the case before the court, it is error to apply that rule arbitrarily and without any qualification. *Packet Co v. Sickles*, 19 Wall. 617 [9 Am. & Eng. 280]; *Burdell v. Denig*, 92 U. S. 716 [p. 421 *ante*]; *Suffolk Mnfg. Co. v. Hayden*, 3 Wall. 320 [7 Am. & Eng. 405].

Four of the pans in this case were used throughout without wings, and wings in most of the others were used only for a short time, and in none of the pans for more than six weeks. Under these circumstances, it was error to charge the jury that, if they found any damages, they must find the amount of the royalty for each pan so used, as that was instructing the jury in effect that they must find \$100 for each pan, which is plainly more than the actual damages proved by the evidence. Actual damage is the statute rule; and, whenever the royalty plainly exceeds the rule prescribed by the Patent Act, the finding should be reduced to the statute rule.

Judgment reversed and cause remanded, with directions to issue a new venire.

93 U. S. 70-71.

Notes:

1. Act 1790, sec. 4; Act 1793, sec. 5; Act 1800, sec. 3; Act 1836, sec. 14; Act 1870, sec. 59; R. S. sec. 4919.

5. Act 1819, sec. 1; Act 1836, sec. 17; Act 1870, sec. 55; R. S. sec. 4921.

6. License fee measure of damages; see *Burdell v. Denig*, 92 U. S. 716, note 2 [p. 421 *ante*].

Notes and Citations.

Patent in Suit:

No. 40,874. Wheeler, Z. December 8, 1863. Amalgamator.

Cited:**IN SUPREME COURT IN:**

Marsh v. Seymour, 1878. 97 U. S. 348; Bk. 24 L. ed 963.
Root v. L. S. & M. S. R. Co., 1882. 105 U. S. 189; Bk. 26 L. ed. 975.
Dobson v. Bigelow Carpet Co., 1885. 114 U. S. 439; Bk. 29 L. ed. 177.
Tilghman v. Proctor, 1888. 125 U. S. 136; Bk. 31 L. ed. 664.

IN CIRCUIT COURTS IN:

Vaughn v. East Tenn., Va. & Ga. R. R. Co., February, 1877. 1
Flipp. 621; 2 Ban. & Ard. 537; 11 O. G. 789.
Brady v. Atlantic Works, October, 1878. 3 Ban. & Ard. 577; 15 O.
G. 965.
Judson v. Bradford, October, 1878. 3 Ban. & Ard. 539; 16 O. G. 171.
Sayles v. R. F. & P. R. R. Co., April, 1879. 3 Hughes 172; 4 Ban.
& Ard. 239; 16 O. G. 43; 7 Rep. 743.
Star Salt Caster Co. v. Crossman, October, 1879. 4 Cliff. 568; 4
Ban. & Ard. 566.
Locomotive Engine Safety Truck Co. v. Penn. R. R. Co., June,
1880. 5 Ban. & Ard. 514; 2 Fed. Rep. 677; 14 Phila. 432.
Wooster v. Simonson, June, 1883. 16 Fed. Rep. 680; 16 Rep. 35.
Child v. Boston and Fairhaven Iron Works, January, 1884. 19
Fed. Rep. 258; 17 Reporter 548.
Westcott v. Rude, April, 1884. 19 Fed. Rep. 830; 27 O. G. 719.
Simpson v. Davis, April, 1884. 22 Fed. Rep. 444.
Stutz v. Armstrong, September, 1885. 25 Fed. Rep. 147.
Wooster v. Thornton, January, 1886. 26 Fed. Rep. 274; 34 O. G.
560.

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Notes and (

Willimantic Thread Co. v. Clark T
Rep. 865.

Bell v. United States. Stamping C
Rep. 549.

Bates v. St. Johnsbury & L. C. R. Co.
628.

Creamer v. Bowers, May, 1888. 31

IN TEXT BOOKS :

Walker on Pats. 1883, pp. 311, 390.

Oct., 1876.]

DALTON v. J

Statement of

JOSEPH DALTON, APPEL
JENNIE

98 (3 Otto) U. S. 271-2

[Bk. 23, L. ed. 925

Affirming *Ibid*, .

Argued December 8, 1876. I

Particular patent construed.

† 1. The patent, No. 124,340, John
Hair-Net. For "a head or ha
meshes fabricated of coarse t
ary set or sets of meshes fabric
cause there is no invention in
had been made and were in p
his application, which are pr
by Dalton in the specification
468.)

Appeal from the Circuit Co
the Southern District of New

The bill in this case was file
appellant, for an injunction a
alleged infringement of a certa
been entered in favor of the
pealed to this court.

The case is fully stated by tl
The specifications and draw
ent are as follows :

*See Explanation of

† Head note by Mr. Justice MILLER



JOSEPH DAL

IMPROVEM

Specification forming p

To all whom it may c

Be it known that I
and State of New
proved Lady's Hair-
ing to be a full, clear
will enable those sk
same, reference bein
forming part of this

Fig. 1 represents a
an enlarged view of
which the net is form
fications.

Similar letters indi

This invention relat
sets of meshes, each
they being combined
after to need prelimin

In the drawing, th
is composed of mes
threads. The meshes
they are of consider
these meshes alone,
mit the short hair to
desirable to partiall
dary meshes *b*. Th
ence, made of very f
invisible when the n
these secondary me
down. The meshes
attached to the mest
when two or more

2 Sheets--Sheet 1.

JOSEPH DALTON.
Improvement in Ladies' Hair Nets.

Fig. 1.

No. 124.340.

Patented March 5, 1872.

Fig. 2.



Witnesses.
Ernest Riddleman.
C. Hahler.

Inventor.
Joseph Dalton
By *[Signature]*
V. L. Latham, Clerk



JOSEPH DALTON.
Improvement in Ladies'-Hair Nets.

No. 124,340. *Fig.*

Patented March 5, 1872.

Fig.

Fig. 5.

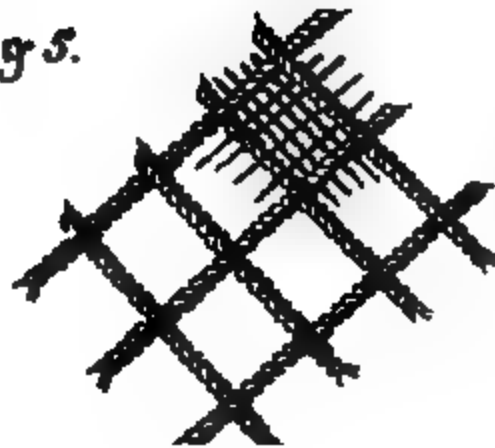


Fig.

Attest:

Proctor & Sewell, Jr.
H. D. Sewell

Inventor:

Joseph Dalton.
Jr. Van Buren & Co.
Atty.

Argument of counsel.

equi-distant, or nearly so; and the two sets of meshes—that is, the main set *a* and auxiliary set or sets *b*—are so formed and connected with each other that either set can be entirely broken away without destroying the other. If the fine meshes, or any of the same, are torn, therefore each torn mesh can be cut out without destroying the main fabric.

The meshes *a*, as well as the meshes *b*, are, by preference, made of double strands, which pass through each other, as shown in Fig. 2, they being fabricated in a manner well known to lace manufacturers; but I do not confine myself to the precise method of forming the meshes. They may, in some cases, be composed of three or more strands, united by tying, in any manner, at the ties, and of varying qualities and color of thread.

The auxiliary meshes, when more than one set is used, may be arranged at acute angles to the main meshes, and may, of preference, be grouped together.

What I claim as new, and desire to secure by Letters Patent, is—

A head or hair net composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread, substantially as described.

J. DALTON.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.

Mr. J. Van Santroord, for appellant:

The patentee's invention is properly described in the phraseology of § 4886 of the patent law, Rev. Stat. p. 954 *as a new and useful improvement of a manufacture.*

The manufacture which is improved is net, so called. The same is a well known fabric, composed of a series of open meshes or squares, of uniform size throughout the same piece of the fabric, each mesh or square being com-

Argument o

proof of prior use of substantia
ogous purposes.

Simply applying an old orga
a patentable subject.

The proofs show that it is
exhibit 16, which has the ver
the patented fabric, and that, t
by the complainant has been
use of the same thing, for the s
and that the patent is consequ

Tucker v. Spaulding, 13 Wal
Brown v. Piper, 91 U. S. 3
Howard, 1 Sumn. 487; How
Bean v. Smallwood, 2 Story, 41
11 How. 248 [5 Am. & Eng. 24
Wall. 815 [8 Am. & Eng. 213].

Dalton's patented net does
structure; does not describe an
improvement, or novel combin
plication to the nets in questio
viously practiced in the same a
stitution of a thread finer in re
or coarser in the like relation,
ing a novel and artistic effect.
of the threads are not even spec

As for *novelty*, it is known th
tion is either in the new *manuf*
new *manner* of producing an o
the former, it must be for sor
different from what is known
mode of operation must be diff
a mere change of proportions th
invention.

These remarks apply fully to
It contains no novelty in itself,
of the patent law, is the findin



or creating something *new* and *useful*, which did not exist before, by the operation of the intellect.

Ransom v. Mayor of N. Y., 1 Fish. 258; Reed v. Reed, 8 O. G. 193; Roberts v. Ryer, 91 U. S. 150 [p. 302 *ante*]; Smith v. Nichols, 21 Wall. 118 [9 Am. & Eng. 425].

Mr. Justice MILLER delivered the opinion of the court:

On the 5th day of March, 1872, there was issued to the plaintiff and appellant, John Dalton, a patent for a new and useful improvement in ladies' hair-nets, in which he claims as new "A head or hair-net composed of a main set of meshes fabricated of coarse thread combined with an auxiliary set or sets of meshes fabricated of fine thread, substantially as described." In his specification, he says that the nets in use before his invention were composed of coarse threads so far apart that the meshes or interstices were too large and permitted the hair to protrude through them, and that his invention consists in combining with these coarse threads and larger spaces a finer thread crossing these spaces as often as is necessary to confine the hair, which thread, from its fineness, is mainly invisible. He gives directions for the use of this finer thread in making the meshes, in which there is nothing he claims to be new. His claim is not for the process of making the net, but for the new product made in the manner prescribed.

The defendant relies on want of novelty, produces some fifteen or sixteen specimens of fabrics and designs which he alleges to be anticipations of plaintiff's production, and refers to as many persons who were making or selling fabrics which are identical with that patented by plaintiff.

If the netting patented by plaintiff had been produced by him for the first time, it would be difficult to find in it or in the process by which it is made anything deserving the name of invention within the meaning of the patent law. If the spaces between the threads of the netting were too large, thereby permitting the escape of the hair, there is

nothing new in the idea that may remedy the evil. If the size of the net is too large for beauty, neither is it necessary to reduce it. There is no number of these threads, in their size, in which they are crossed and combined, in invention? Is it in the fact that some are coarser and some of finer size? Is it in the fact, since gauze and netting have cords of unequal size and equal or unequal spaces between them?

Turning from this view of the exhibits produced by defendants long in use, in which the larger cords or threads crossing each other fill up the interstices smaller. Defendant's net is a lace with spaces separated and defined by a cord, which are subdivided into a smaller thread, that is proved to have been fifty.

Exhibit No. 12 is a tidy with spaces between each, and usually are four threads dividing the spaces. It is proved that from the time a workman to get up a pattern.

Exhibit No. 11 is a mosquito net with cords crossing each other about the size of smaller threads crossing this space. The interstices too small for the net, just as Mr. Dalton's net prevents mosquitoes. It is the same device to remove mosquitoes and the only one is for mosquitoes and the only one is for mosquitoes and the only one is for mosquitoes.

Exhibit No. 6 is a hair-net with cords crossing each other at equal distances, passing over or around them, and



Notes and Citations.

to reduce the size of the interstices. This was used and sold openly in New York in 1871.

Exhibit No. 2 is a hair-net made twenty years ago, in which the larger cords are knotted together at their crossing at regular intervals, and smaller threads between, so as to make the meshes smaller. We can see in this case no difference between this and exhibit of plaintiff, unless it be in the shape of the spaces large and small, and the manner in which the threads are connected. Neither of these is claimed by plaintiff as any part of his invention or as new, for he says this is a matter well known to lace makers.

In the lace, in the mosquito bar, in the tidy, the fabric presents in each case the precise arrangement described in the plaintiff's patent. These have been long in use, and are well known.

In exhibits 2 and 6 we have the same fabric as plaintiff's applied to the same use. It is impossible to call the hair-net or netting, for which plaintiff claims a patent, a new invention, or any invention of his, *and the decree of the Circuit Court, dismissing his bill, is affirmed.*

93 U. S. 273-274.

Note:

1. Change in *size held* not to involve invention:

Phillips v. Page, 24 How. 161 [7 Am. & Eng. 97].

Estey v. Burdett, 109, U. S. 633.

Pomace Holder Co. v. Ferguson, 119 U. S. 335.

Patent in suit:

No. 124,340. Dalton, J. March 5, 1872. Ladies' Hair-Nets.

Oct., 1876.]

DALTON v. J.

Notes and (

OTHER SUITS ON SAME PATENT:

**Dalton v. Jennings, 1874. 12 Bl.
O. G. 615.**

Cited :

IN TEXT-BOOKS:

Merwin on Pat. Invt., 1883, p. 143.

Statement of the case.

MORITZ COHN, APPELLANT, v. THE UNITED STATES
CORSET COMPANY ET AL.*

93 (3 Otto) U. S. 366-379. Oct. Term, 1876.

[Bk. 23 L. ed. 907; 11 O. G. 457.]

Affirming *Ibid*, 12 Blatch. 225.

Argued November 21, 1876. Decided December 4, 1876.

Particular patent construed. Prior publication. Article and process.

1. Letters patent No. 137,893. M. Cohn, April 15, 1873. Corsets, for a manufacture *held* anticipated by the invention described in Johnson's English provisional specification No. 143 of January 20, 1854. (p. 483.)
2. Unless the earlier printed and published description does exhibit the latter patented invention in such full and intelligent manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent. (p. 483.)
3. A patent is invalid if the invention claimed is found to be patented or described in a printed publication prior to the patentee's invention or discovery thereof; and it is enough if the thing patented is described, and not the steps necessarily antecedent to its production. (p. 491.)
4. Thus, when the invention claimed is an article, it is not necessary, in order to render the patent void, that the prior publication should also contain a description of the process by which such article was made. (p. 491.)

Appeal from the Circuit Court of the United States for the Southern District of New York.

The bill in this case was filed in the court below by the appellant, to recover for an alleged infringement of a certain patent. A decree of dismissal having been entered, he took an appeal to this court.

*See Explanation of Notes, page III.

The specifications and drawings of Cohn's letters patent and of Johnson's provisional specification, are as follows :

MORITZ COHN, OF NEW YORK, N. Y.

IMPROVEMENT IN CORSETS.

Specification forming part of Letters Patent No. 137,893, dated April 15, 1873 ; application filed January 30, 1873.

To all whom it may concern :

Be it known that I, Moritz Cohn, of New York city, in the State of New York, have invented certain new and useful Improvements in Corsets ; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this application.

Previous to my invention it has been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running through from edge to edge, or all stopped and finished off at a uniform distance from the edge, and adapted to receive the bones, which are inserted to stay the woven fabric, and which serve as braces to give shape to and support the figure of the wearer. This method of manufacturing the corsets necessarily involves a great deal of hand labor, and, consequently, expense, in stitching up the ends where they are woven with pockets running through from edge to edge to hold the bones in place ; or, else the upper ends of the bones are necessarily all located at a uniform distance from the edge, resulting in a less perfectly-shaped corset than is produced by following out my invention.

I propose, by my invention, to overcome the objections just named and produce a corset in which the location or position of the bones endwise shall be predetermined with

M. COHN.
Corsets.

No. 137,893.

Patented April 15, 1873.

Fig. 1

Fig. 2.



Fig. 3.

Fig. 4.



Witnesses:

Geo Smith.
J. Helbel.

Fig. 5.



Inventor:

Moritz Cohn.
By his Attorney.
J. A. Mc Intire.

Statement of the case.

the accuracy of the jacquard in the process of weaving the corset stuff or material, while I at the same time effect a great saving of labor and expense, and give a more perfect shape. My invention has for its main object, therefore, not only the production of a better article but also a reduction in the cost of manufacture; and to these ends my invention consists in having the pocket-like openings or passages into which the bones are put closed up near one end at that point at which it is designed to have the end of each bone located, as will be hereinafter more fully set forth.

To enable those skilled in the art to make and perfectly understand my invention, I will proceed to more fully describe it, referring by letters to the accompanying drawing, in which, for the purpose of illustration, I have represented two corsets, one made according to the mode of manufacture heretofore most generally practiced, the other according to my new method.

It will be seen by reference to Figures 1 and 2 that the bones *a* are held or secured in place endwise in the pockets *b* of the corset material *C* by stitching *e*, which is done after the insertion of the bone, and retains the bone endwise by closing up the passage-way or pocket in which it is located. This is in accordance with or illustrates the mode of manufacture originally practiced, and only departed from prior to my invention, as heretofore explained.

At Figs. 3, 4, and 5 is illustrated, in elevation and longitudinal and cross-sections, a corset made according to my improved plan.

In these figures, *A* is the woven fabric of the corset, which, in lieu of being made with pocket-like openings or passages running through from edge to edge, or up to a uniform distance from the edge, I propose to have woven with pockets or passages, which extend from one edge of the fabric toward the other, but stop short of the latter at such point or locality as is predetermined for the location of the end of each bone, according to the design or shape to be given to the corset, as shown. The fabric is woven

with the pockets extending, as seen, from one edge, B, of the fabric to the points, *b*, *c*, *d*, &c., and from these points out to the edge F the fabric is woven solid or without any passages. *f f* represent the bones, which are made of the proper length, and are inserted from the edge B or at the open ends of the pockets. After their insertion the bones are pushed "home" to the bottom of their respective pockets, when the mouths or open ends of the said pockets are closed up by the stitching and binding of the edge B of the corset, and the perfect retention of the bones thus effected.

It will be understood that by forming the corset, as described, with pockets closed at one end, and weaving in such pockets of varying lengths, I am enabled to determine in the manufacture of the corset-fabric the precise points to which the subsequently inserted bones shall extend, and thus pattern any number of corsets exactly alike and to the most desirable model.

Corsets made according to my improved plan, it will be seen, can be made to a perfect and regular pattern, will be more desirable in appearance, and can be produced at less cost than those made according to the mode of manufacture practiced previous to my invention.

I am aware of and do not claim a woven corset with the pockets stopped and finished off at a uniform distance from the edge; I am also aware of and do not claim a hand-made corset with pockets of varying lengths stitched on; but

What I do claim as new, and desire to secure by Letters Patent, is—

A corset having the pockets for the reception of the bones formed in the weaving and varying in length relatively to each other, as desired, substantially in the manner, and for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal.

M. COHN. [L. s.]

In presence of—

J. N. McINTIRE,

GEO. A. GREENWOOD.

Argument of counsel.

MANUFACTURE OF STAYS OR CORSETS.

(This invention received Provisional Protection, but notice to proceed with the application for Letters Patent was not given within the time prescribed by the act.)

Provisional specification left by John Henry Johnson at the Office of the Commissioners of Patents, with his petition, on the 20th January, 1854.

I, John Henry Johnson, of 47, Lincoln's Inn Fields, in the county of Middlesex, and of Glasgow, North Britain, Gentleman, do hereby declare the nature of the said invention for "Improvements in the manufacture of Stays or Corsets," communicated to me by Adolphe Georges Geresme, of Paris, in the Empire of France, Manufacturer, to be as follows:—This invention relates to the manufacture of what are known as woven corsets, and consists in the employment of the jacquards in the loom, one of which affects the shape or contour of the corset and the other the formation of the double portions or slots for the introduction of the whalebones. These slots or double portions are made simultaneously with the single parts of the corset, and in place of being terminated in a point they are finished square off, and at any required length in the corset, instead of always running the entire length, as is usually the case in woven corsets. When the corset is taken from the loom the whalebones are inserted into these cases and the borders are formed, thus completing the article, which contains all the elegance and graceful contour of sewn corsets made by manual labor.

*Messrs. Benj. F. Thurston, and Kellogg and Blake,
for appellant:*

The law is well settled that to render a prior description sufficient to invalidate a patent it must describe the thing patented so fully and clearly that the description would answer for the specification of a patent. This court has

Argument of counsel.

clearly stated the rule, in *Seymour v. Osborne*, 11 Wall. 516 [8 Am. & Eng. 290].

In the case of *Roberts v. Dickey*, 4 Fish. 545, Judge STRONG states: "A patent is rendered invalid by a prior published description, only where that description was sufficient to give to the public a practical knowledge of the invention claimed."

The description contained in Johnson's English provisional specification is too vague and indefinite to furnish any certain information as to the character of the corset which Geresme had made. Certain things are sufficiently clear, but as to the material question whether the tubular passages for the whalebones were stopped off in the weaving at all so as to form pockets without subsequent fanning, the specification is silent, and it is only from certain general expressions which are used that there exists any foundation for the *conjecture* that possibly the bone passages were stopped off by weaving.

If it be impossible to make Johnson's specification intelligible then it is no answer to the Cohn patent. Again if there are several interpretations that can be given to it, it will be impossible to say which one is correct. Again if, in order to make it describe the thing patented, inconsistent statements be rejected and words supplied not found in the paper, then the rule as established both in this and the English courts as to what must be the character of a prior publication to *defeat* a patent is violated. I earnestly insist upon the right of the patentee in this case, to require that the Johnson (Geresme) specification should be strictly construed, that nothing should be conjectured as to its meaning but that it should clearly appear by unequivocal statement that the thing which is the subject of the Cohn patent is described in it, before it can be declared to anticipate a most meritorious improvement.

Mr. George Gifford, for appellees :

The patent to appellant purports to be for a manufac-

Argument of counsel.

tured article, although the invention claimed to have been made is only a slight change in the *construction* of that article.

The corset described by Johnson in his provisional specification and the corset described by appellant, are the same, but neither of them differs from what was previously known, in anything which was not so obvious as not to require invention, or justify a patent.

Prior to 1854, just such a corset in *form* as is described in appellant's patent was well known and in use as a common article of merchandise. That is, woven corsets with woven bone pockets stopped off at unequal heights by weaving by use of the Jacquard were well known as a common article of merchandise prior even to 1854, the time of the publication of the Johnson specification.

Such was the state of the art. What, then, remained for the appellant or Johnson or anyone else to do to produce such a corset as is described in appellant's patent? Certainly nothing in the form, principle or structure of the article. Certainly nothing in the relative heights or lengths of the bone pockets. Certainly nothing in the art of weaving bone pockets or of stopping them off in weaving, or in stopping the bone pockets off at different heights in weaving. It seems, therefore, difficult to identify any substantial difference between the old corset and that described by the appellant. The reason of the difficulty is because the difference is so small and so entirely destitute of anything partaking of principle, combination or structure. This difference consists only of a different way in stopping off a part of the bone pockets in the corset from that in which those particular bone pockets had been stopped off in the old corsets; that is, only closing the body bone pockets at the same places where they had been closed by sewing, and by the same means that other bone pockets had been closed in the same corsets. It consisted only in closing the tops of the body bone pockets by the same means by which the tops of the hip gusset pockets

Opinion of the court.

had been closed in the old corsets. Some of the pockets of a corset had been closed in weaving, and others in the same corset had been closed by sewing. The alleged invention consists only in closing those pockets which had been closed by sewing, the same as the others had been closed.

It is respectfully submitted that closing all the pockets as some had been done, is not patentable subject matter, nor forms a patentable article of manufacture; but that, on the contrary, these changes were so obvious that they belonged to the public.

The English specification of Johnson, taken in connection with the then state of the art, described such a corset as that patented by appellant, and directed how to make it; and therefore anticipates the appellant's invention, and invalidates his patent.

Mr. Justice STRONG delivered the opinion of the court:

A careful examination of the evidence in this case has convinced us that the invention claimed and patented to the plaintiff was anticipated and described in the English provisional specification of John Henry Johnson, left in the office of the Commissioner of Patents on the 20th of January, A. D. 1854. That specification was printed and published in England officially in 1854, and it is contained in volume 2, of a printed publication circulated in this country as early as the year 1856. It is, therefore, fatal to the validity of the plaintiff's patent if, in fact, it does describe sufficiently the manufacture described and claimed in his specification. It must be admitted that, unless the earlier printed and published description does exhibit the later patented invention in such a full and intelligible manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent. Keeping this princi-

Opinion of the court.

ple in view, we proceed to compare the plaintiff's invention with the antecedent Johnson specification. In order to do this, a clear understanding of the patent and of the invention the plaintiff claims to have made is indispensable. His application at the Patent Office was made on the 30th of January, 1873. In it he claimed to have invented "A new and useful improvement in corsets." After reciting that previous to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running from edge to edge, and adapted to receive the bones which are inserted to stay the woven fabric, and which serve as braces to give shape to and support the figure of the wearer ; but that it had been necessary, after the insertion of the bones into said pocket-like passages, to secure each one endwise by sewing, he proceeded to mention objections to that mode of making a corset. He specified two only. The first was, that it involved much hand labor and consequent expense in sewing in the bones, or securing them endwise in the woven passages ; and the second was, that the arrangement or placement of the bones in the passages had to be determined by hand manipulation, and that it was, therefore, variable and irregular, such as frequently to give to the corset an undesirable shape or appearance near its upper edge. These objections he proposed to remove, and to produce a corset in which the location or position endwise of the bones shall be predetermined with the accuracy of the jacquard, in the process of weaving the corset stuffs, or material, thereby effecting the saving of labor and expense in the manufacture. He, therefore, declared his invention to consist in having the pocket-like openings or passages into which the bones are put closed up near one end, and at that point at which it is designed to have the end of each bone located. The claim then made was as follows : "A corset woven with the pockets for the bones closed at one end, substantially as and for the purpose set forth." It is very

Opinion of the court.

evident that, when this application was presented to the Commissioner of Patents, the only invention the applicant supposed he had made, and the only one claimed, was a corset the bone pockets in which had been closed at one end in the weaving. A patent for it was refused, for the reason assigned, that such a corset was described in the printed publication of Johnson's specification.

The plaintiff then amended his application, manifestly to set forth an invention differing in some particulars from that of Johnson. The amendment, however, proved insufficient, and a second rejection followed. Other amendments were then made, until his present patent was at last granted, dated April 15, 1873. In the specification which accompanies it, the patentee admits, what he admitted at first, that prior to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running through from edge to edge; and he makes the further admission, that it had been customary to weave the material with such passages all stopped and finished off at uniform distances from the edge. He, therefore, disclaims "a woven corset with the pockets stopped and finished off at a uniform distance from the edges," and disclaims also "a hand-made corset with pockets of varying lengths stitched on;" and his claim is, "A corset having the pockets for the reception of the bones formed in the weaving, and varying in length relatively to each other as desired, substantially in the manner and for the purposes set forth." The specification nowhere sets forth the manner in which the alleged improvements in the corsets are produced, unless it be by reference to a jacquard in the loom. No process is described. None is patented. The claim is for a manufacture, not for a mode of producing it. Its peculiarities, as described, are, that the pockets for the reception of the bones are formed in the weaving, rather than by hand, and that they are of varying lengths, relatively to each other; that is, that the pockets differ in

Opinion of the court.

length from other pockets in the same corset, as desired. There are no other particulars mentioned descriptive of the patented improvement, unless they are that the weaving or variations in the length of the pockets are to be in the manner and for the purpose set forth in the specification. Referring to that, the purpose avowed is the production of a better shaped corset at less expense ; and the manner of effecting this is by substituting weaving for stitching, in closing the pockets at desired or predetermined distances from the edge. Now, in view of the patentee's disclaimers, stopping off the passages or pockets in the weaving is not covered by the patent. It is admitted, that had been done before, and no claim is made for it. All that is left, then, is, that the woven and closed pockets in the corset vary in length. No rule is stated for the variation. It is not stated which are comparatively short and which long, or how much shorter some are than others, or how near any or all of them come to the edge. The demands of the claim in this respect are met, if some of the pockets desired to be longer than others are thus made. But the claim must be further limited in view of the state of the art when the application for the patent was made. The manufacture of hand-made and woven corsets is an art long known ; known long before the Johnson improvement. Those made by hand had gores inserted to give enlarged space for the breasts of the wearer, and also gores or gussets at the lower part, to give space for the hips. In woven corsets these enlargements, equivalent to gussets, were formed by the jacquard loom. For more than twenty years it has been customary to weave in these gussets bone-pockets stopped off or closed in the weaving at various distances from the edge of the corset. Those extending upward from the lower edges were stopped off at varying heights, and those extending from the upward edge downward over the breast were woven close at their lower extremities at unequal distances from the top. It is true that, where the stoppage

Opinion of the court.

was effected in weaving, the pockets in the gussets were closed pointedly, and unavoidably so, by the necessary contraction of the threads of the weft. But whether the stoppage was pointed or blunt or square, is unimportant. It is not claimed as a feature of the plaintiff's invention. His claim, then, cannot refer to the gusset pockets. The well known state of the art, existing before even the Johnson description, requires its limitation. It must refer exclusively to the pockets under the arms of the wearer, or on the back, or in front of the body. It claims weaving them of various lengths when closed. That is all.

Having thus analyzed the plaintiff's alleged invention, and ascertained what it is, we are prepared to examine the Johnson provisional specification, and inquire whether it described with sufficient certainty and clearness a corset having the improvement claimed by the plaintiff. We quote at length the entire description. Johnson, having declared the nature of the invention for which he sought a patent to be "improvements in the manufacture of stays or corsets," communicated to him by Adolph Georges Geresme, of Paris, in the Empire of France, described it as follows: "This invention relates to the manufacture of what are known as woven corsets, and consists in the employment of the jacquards in the loom, one of which effects the shape or contour of the corset, and the other the formation of the double portions of slots for the introduction of the whalebones. These slots or double portions are made simultaneously with the single part of the corset and, in place of being terminated in a point, they are finished square off, and at any required length in the corset, instead of always running the entire length, as is usually the case in woven corsets. When the corset is taken from the loom the whalebones are inserted into these cases, and the borders are formed, thus completing the article, which contains all the elegance and graceful contour of sewn corsets made by manual labor."

Opinion of the court.

Undeniably, this is a description of woven corsets, woven by the use of the jacquards in the loom; woven with slots or passages for the bones, made simultaneously with the other parts of the corsets, and requiring nothing to be done to them after their removal from the loom, except the insertion of the bones and the formation of the borders. It is also plainly a description of corsets in which the passages for the bones, called the double portions or slots, are finished; that is, stopped off in the weaving. That the expression "finished off square" means closed or stopped off square, is manifest, for several reasons. It is used to distinguish the manufacture from one in which the termination of the slots is pointed, as is always the case with the slots in the gussets, and necessarily so. The pointed terminations are closures, and the finished square terminations are only a different mode of closure. The idea in Johnson's mind was, therefore, that of ending or termination by shutting up, or closing squarely, instead of enclosing pointedly. And it was the slot or passage that was to be finished off and not merely the upper portion of the slot, or one of its sides. A second reason for concluding that the specification describes closed slots or passages is found in the concluding paragraph, which states that, when the corsets are taken from the loom all that remains to be done to complete them is to insert the bones into these "cases," and form the borders. Thus, it is said, they are completed, "containing all the elegance and graceful contour of sewn corsets made by manual labor." There is not an intimation that the needle is to be applied after removal from the loom. This portion of the description is utterly inconsistent with the idea that the pockets are not closed by the weaving. If they are not, more is required to complete the corsets after the loom has done its work than forming the borders and inserting the bones. The pockets must be closed by stitching before they are ready for the bones. Besides, those parts of the corset which in one part of the

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specification are denominated "double portions of slots," and in another, "slots, or double portions" finished square off, are also called "cases," a word that expresses the idea of enclosure, and which is inapplicable to open passages. For these reasons, we cannot doubt that the meaning of the specification is, that the passages, slots, double portions, cases, pockets, by whatever name they are called, are to be closed in the weaving. And the plaintiff so understood it when he applied for his patent. In view of the published description to which his attention was called, he disclaimed stopping and finishing off the pockets in the weaving, and stated in his amended specification that he was aware of corsets thus made, and that it had been customary in the manufacture to weave the material with pocket-like passages, all stopped and finished off at uniform distances from the edge, and adapted to receive the bones.

It is manifest, then, there is nothing in the plaintiff's patent which was not described in the Johnson specification, unless it be that the closed slots or cases mentioned in the former are required to be woven of varying length. A variation in the length of the pockets relatively to each other, as desired, is, as we have seen, the sole distinctive feature of the plaintiff's invention. But it was well known before Johnson filed his specification that the bone-pockets of a corset must vary in length. They were made to vary in hand-made corsets, and in woven ones by sewing. In all corsets, whether hand-made or woven, the pockets under the arms were made shorter, and those at the back and in front were made longer, in order to fit the wearer and preserve a graceful shape at the top. Every person skilled in corset making knew the necessity of such variation. In Johnson's description, it was asserted that the shape or contour of his corset was formed in the weaving; so far, therefore, as that was affected by the relative length of the pockets, it was dependent upon the loom. The description left to the manufacturer to determine what

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should be the length of each pocket, in order to secure the elegance and graceful contour of sewn corsets; in other words, to determine before the weaving where the double portions or slots should be stopped off. Johnson knew—having before him the state of the art at the time—that pockets of uniform length would not adapt the corset to fit the wearer, and would not be consistent with elegance of shape. And there is not a word in his description that intimates the pockets are to be stopped off or closed at uniform distances from the edge or without variation in length. The contrary idea is manifest. It is said they are to be finished (closed) *at any required length*. Required length? Required by whom, and for what? Plainly by the manufacturer; and that they may have all the elegance and graceful contour of sewn corsets made by manual labor, and also that they may fit the wearer. Such a requirement could be met only by pockets of different lengths in the same corset. And if they were stopped wherever required, and it was required that they should stop off at varying distances from the edges of the corset, the description pointed out a corset thus made. It is true, no particular length of the different pockets was specified, nor was any proportion mentioned which one pocket should bear in length to another. That was left to the manufacturer, as it is to the manufacturer of hand-made corsets, and as it is in the plaintiff's specification. He does not say how near to the upper edges of his corset the base of the closed pockets comes, nor what proportion in length one bears to the others. He simply describes them as varying in length relatively to each other, as desired. This is certainly not more definite than Johnson's description. In both, the variations in length and their relative proportions are left to the judgment and taste of the corset maker. It is impossible, therefore, to find anything in the plaintiff's patent which was not with equal definiteness and perspicuity described in the printed publication (Johnson's specification), made nineteen years before the patent was granted.

It is quite immaterial (even if it be a fact) that the Johnson specification is insufficient to teach a manufacturer how to make the patented corset. It is enough if it sufficiently describes the corset itself. Neither it nor the plaintiff's specification exhibits the process of making. Neither of them set up a claim for a process. The plaintiff claims a manufacture, not a mode of making it; and the important inquiry, therefore, is, whether the prior publication described the article. To defeat a party suing for an infringement, it is sufficient to plead and prove that the thing patented to him had been patented or described in some printed publication prior to his supposed invention or discovery thereof. Rev. Stat. sec. 4920. What is required is a description of the thing patented, not of the steps necessarily antecedent to its production. But the evidence shows that the Johnson specification, in connection with the known state of the art at the time when it was filed and published, was sufficient to enable one skilled in the art of corset making and in the use of the jacquard to make the patented corset. It is very clearly proved that it gave sufficient instruction, and that it needed no addition to furnish full information to a corset weaver how to weave a corset with the use of the jacquard, and stop off all the bone-pockets in the weaving at the right places. It is also proved that the corset patented to the plaintiff can be made as easily by the use of two jacquards, as described by Johnson, as by the use of one; and it was so made during the trial of the present case. It is, however, unnecessary to consider the possibilities of two jacquards in operation at the same time in one loom. It could only be material if the plaintiff were claiming a process for making a corset. It is enough for this case that the invention patented to the plaintiff was clearly described in 1854, in the printed publication of the Johnson (Geresme) provisional specification. The patent is, therefore, invalid, and hence the de-

Dissenting opinion.

cree of the Circuit Court dismissing the bill must be affirmed.

Decree affirmed.

Mr. Justice CLIFFORD dissenting :

Inventors are required, before they receive a patent, to deliver a written description of their inventions, and of the process of making, constructing and using the same, "in such full, clear, concise and exact terms," as to enable persons skilled in the art or science to make, construct and use the same.

Power to grant letters patent is vested in the Commissioner; but when the power is exercised and the patent has been duly granted, it is, of itself, *prima facie* evidence that the patentee is the original and first inventor of that which is therein described and secured to him as his invention.

Proofs are admissible to overcome that presumption but it is well settled law that patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of a prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement, "in such full, clear, concise and exact terms," as to enable any person skilled in the art or science to which it appertains, to make, construct and use the invention to the same practical extent as he would be enabled to do if the information was derived from a prior patent. Applicants for a patent are as much required to describe the manner and process of making, constructing and using the invention, as they are to file in the Patent Office a written description of the alleged improvement; and both are expressly required to be in such full, clear, concise, and exact terms, as to enable any person skilled in the art or science to make, construct and use the invention.

Nothing deserving the least consideration is exhibited in the record to support the defense that the appellant is

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Notes and (

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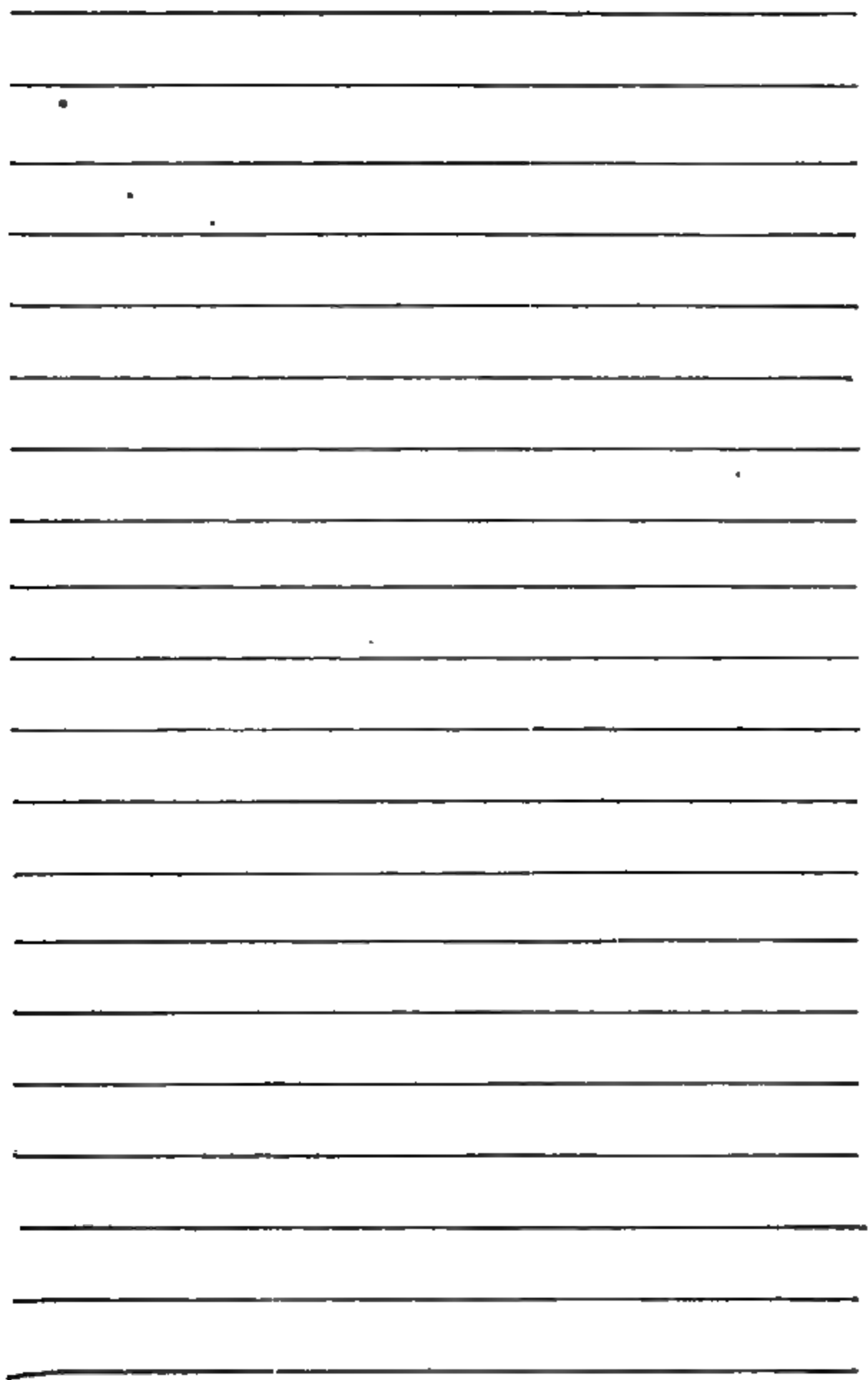
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2 Abb. Pat. Laws, 1886, p. 60.

Merwin on Pat. Inv't., 1883, pp. 15



Syllabus.

NATHAN C. RUSSELL, APPELLANT, v. SAMUEL DODGE, SR., AND SAMUEL DODGE, JR.*

93 (3 Otto) U. S. 460-465. Oct. Term, 1876.

[Bk. 23, L. ed. 973; 11 O. G. 151.]

Argued December 12, 1876. Decided January 15, 1877.

Particular patent construed. Reissue. Different invention. Sufficient description. Defective specification. Correction by reissue. Commissioner's action in granting reissue.

- †1. Where the (original) letters patent No. 93,910, N. C. Russell, August 17, 1869. Preparation of Leather, was for a process for treating bark-tanned lamb or sheep skin by means of a compound, in which heated fat liquor was an essential ingredient, and a change was made (on its reissue No. 3,816, February 1, 1870) in the original specification by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience and by inserting an independent claim for the use of fat liquor in the treatment of leather generally, the character and scope of the invention as originally claimed were *held* to be so enlarged as to constitute a different invention. (The reissue also held void for want of novelty). (p. 506.)
2. Where a useful result is produced in any art, manufacture, or composition of matter by the use of certain means for which the inventor or discoverer obtains a patent, the means described must be the essential and absolutely necessary means, and not mere adjuncts, which may be used or abandoned at pleasure. (p. 507.)
- †3. Where a reissued patent is granted upon a surrender of the original, for its alleged defective or insufficient specification, such specification cannot be substantially changed in the reissued patent, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the

* See Explanation of Notes, page III.

Statement of the case.

invention as originally claimed. A defective specification can be rendered more definite and certain so as to embrace the claim made, or the claim can be so modified as to correspond with the specification; but, except under special circumstances, this is the extent to which the operation of the original patent can be changed by the reissue. (p. 508.)

- † 4. The action of the Commissioner of Patents in granting a reissue within the limits of his authority is not open to collateral impeachment, but his authority being limited to a reissue for the same invention, the two patents may be compared to determine the identity of the invention. If the reissued patent, when thus compared, appears on its face to be for a different invention, it is void, the Commissioner having exceeded his authority in issuing it. (p. 509.)
- † 5. The case of *Klein v. Russell* reported in 19 Wallace stated and qualified. (p. 510.)

[Citations in opinion of the court:]

Morey v. Lockwood, 8 Wall. 230 [8 Am. & Eng. 78]. p. 508.

Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290]. p. 509.

Wicks v. Stevens, 2 Woods, 310. p. 510.

Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244]. p. 510.

Appeal from the Circuit Court of the United States for the Northern District of New York.

The appellant was the complainant in the court below, where a decree was rendered dismissing his bill; whereupon he took an appeal to this court.

The case is fully stated by the court.

The specifications of the original and reissued letters patent of Russell are as follows:

† Head notes by Mr. Justice FIELD.

Statement of the case.

NATHAN C. RUSSELL, OF GLOVERSVILLE, NEW YORK.

IMPROVED PROCESS OF TREATING LEATHER SO AS TO RENDER IT SUITABLE FOR THE MANUFACTURE OF GLOVES, ETC.

Specification forming part of Letters Patent No. 93,910, dated August 17, 1869.

To all whom it may concern :

Be it known that I, Nathan C. Russell, of Gloversville, in the county of Fulton and State of New York, have invented a new and useful Improvement in the Preparation of Leather ; and I do hereby declare that the following is a full, clear and exact description of the same.

My invention consists in a novel treatment of what is known as "bark-tanned lamb or sheep skin," an article used by bookbinders, and which, while sufficiently soft and supple for the purposes of their trade, is too harsh and stiff for glove making and a variety of other purposes. This objection is removed by my treatment of the article, and the latter rendered so soft and free, yet full, in respect of body, as to adapt it, among other purposes or uses, to the making of what are termed "dog-skin " gloves.

The process I adopt, and which constitutes my invention, is as follows : I take of "fat liquor," obtained in scouring deer-skin after tanning in oil, say, ten gallons (10 gals.), and warm the same by heating it to or near the boiling point. I then add to such heated fat liquor eight ounces (8 oz.) of sal soda, twelve ounces (12 oz.) of common salt, one pint (1 pt.) of soft soap, and four ounces (4 oz.) of Venetian red, and stir and mix these several ingredients with the fat liquor.

This forms the treating mixture or compound, and when made in the foregoing quantity will suffice for five or six dozen skins ; but of course such quantity may be more or less varied, as may also the proportions of the ingredients,

Statement of the case.

and the Venetian red or other coloring matter be modified or omitted, as desired.

To effect the treatment hereinbefore referred to of the bark-tanned or bark-tanned shaved lamb or sheep-skin, I lay said skin on a table or other suitable surface, and rub the above-described compound onto both sides of it, using for the purpose a horse or other suitable brush or rubber, by which it can be worked into the skin, that is afterward hung out to dry, and subsequently "staked," when the character of the skin will be found entirely changed from harshness to softness, and, in other respects, thereby adapting it to the manufacture of gloves of the description previously named and to a variety of other purposes for which said skin was not suitable prior to the treatment of it I have herein described.

Claim.

What is here claimed, and desired to be secured by Letters Patent, is—

The process, substantially as herein described, of treating bark-tanned lamb or sheep-skin, by means of a compound composed and applied essentially as specified.

N. C. RUSSELL.

Witnesses :

FRED. HAYNES,
M. J. SHANLYS.

NATHAN C. RUSSELL, OF GLOVERSVILLE, NEW YORK.

Letters Patent No. 93,910, Dated August 17, 1869; reissue No. 3,816, Dated February 1, 1870.

IMPROVEMENT IN THE TREATMENT OF LEATHER.

The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, Nathan C. Russell, of Gloversville, in

Statement of the case.

in the county of Fulton, and State of New York, have invented a new and useful Improvement in the Preparation of Leather; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention consists in a novel treatment of what is known as "bark-tanned lamb or sheep-skin," an article used by book-binders, and which, while sufficiently soft and supple for the purposes of their trade, is too hard and stiff for glove-making, and a variety of other purposes. This objection is removed by my treatment of the article, and the latter rendered so soft and free, yet full in respect of body, as to adapt it, among other purposes or uses, to the making of what are termed "dog-skin gloves."

The principal feature of the invention consists in the employment of what is known amongst tanners and others, as "fat liquor," which is ordinarily obtained by scouring deer-skin after tanning in oil, but which, when it is not convenient to obtain in this manner, may be produced, or a liquor having the same character obtained, by the cutting of oil with a suitable alkali.

In treating leather with the "fat liquor," it is desirable to heat the latter to or near the boiling-point, and it is preferred to use the same in connection with other ingredients. Thus, for instance, there may be added to each ten gallons (10 gals.) of such heated fat liquor, eight ounces (8 oz.) of sal-soda, twelve ounces (12 oz.) of common salt, one pint (1 pt.) of soft soap, or an equivalent quantity of hard soap, and four ounces (4 oz.) of Venetian red, such ingredients to be well stirred and mixed with the fat liquor.

This forms a good treating-mixture or compound, and when made in the foregoing quantity, will suffice for five or six dozen skins; but of course such quantity may be more or less varied, as may also the proportions of the ingredients, and the Venetian red, or other coloring-matter, be modified or omitted, as desired.

To effect the treatment, hereinbefore referred to, of the bark-tanned lamb or sheep-skin, the same should be well

dipped in or saturated with the fat liquor or compound of which fat liquor is the base. This may be done by laying the skin to be treated on a table or other suitable surface, and rubbing the fat liquor, or compound on or into both sides of the skin, using, for the purpose, a horse or other suitable brush, or rubber, by which it can be worked into the skin, that is afterward hung out to dry, and subsequently "staked," when the character of said skin will be found entirely changed from harshness to softness, and in other respects, thereby adapting it to the manufacture of gloves of the description previously named, and to a variety of other purposes for which said skin was not suitable prior to the treatment of it I have herein described.

What is here claimed, and desired to be secured by Letters patent, is—

1. The employment of fat liquor in the treatment of leather, substantially as specified.

2. The process, substantially as herein described, of treating bark-tanned lamb or sheep-skin, by means of a compound composed and applied essentially as specified.

N. C. RUSSELL.

Witnesses :

FRED. HAYNES,

FERD. TUSCH.

Mr. Horace E. Smith, for appellant :

The Circuit Court erred in its construction of complainant's patent, to wit: in holding and deciding that it covered and claimed the use of *cold* fat liquor, pure and simple; and that the patented process did not require *heated* fat liquor.

On the trial of the action at law against the Places, before Judge Woodruff, defendants claimed, and the court held, that the patent required heated fat liquor. The defendants then insisted that they had never used *heated* fat liquor, and hence had not infringed. On the trial of the action against Klein, before Judge Hall, defendant claimed,

Argument of counsel.

and the court held, that the patent covered the use of *cold* fat liquor. Next in order of time, the cases at bar came on for hearing and argument, and the Circuit Court, Justice Hunt presiding, adopted Judge Hall's construction. Subsequently, the Klein case came up before this court for argument, on writ of error; the question of construction was argued, carefully considered by the court, and decided in accordance with Judge Woodruff's construction.

Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].

On the argument in the court below, defendants attacked the patent on the ground that the specification does not describe the invention in such "full, clear and exact terms," "as to enable any person skilled in the art or science to which it pertains," to use the same. These objections are old, they have been met at every stage of the litigation under this patent, and as often successfully answered. By reference to the case of Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244], it will be seen that these questions were up and disposed of.

The rule of construction applicable is that patents are to be construed liberally in favor of the patentee; so construed, if possible, as to make the claim co-extensive with the actual invention or discovery, and give the patentee the benefit of it.

Curtis on Pats., 4th ed., §§ 225, 231; Ames v. Howard, 1 Sumn. 485; Corning v. Burden, 15 How. 269 [6 Am. & Eng. 69]; Pitts v. Whitman, 2 Story, 621; Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].

We respectfully submit that nobody has had any trouble in applying the invention. The patentee, his licensees, and workmen, and the *various infringers*, have all used the process successfully.

The specification does not, as erroneously assumed, require the application of the liquor to the skin at or near the boiling point. Any person of common sense would know that such an application would injure the skin, and wait for the liquor to cool before using it.

Argument of counsel.

There is nothing in the objection that the specification does not point out the exact degree to which the temperature of the liquor is to be raised. If the patentee had so restricted his claim, his patent would have been utterly worthless; for any person might have taken all the benefits of the invention by varying the heat half a degree, without infringing the patent. The same answer applies to the objection that the exact proportions of ingredients are not fixed by the specification. Had they been, the omission of one, or a slight and practically unimportant variation in quantity "would have given immunity to an infringer."

The answer of defendant alleges that the reissue covers ground not embraced in the original patent, and claims improvements not made by the patentee, and further, that the surrender was made with the fraudulent intention of deceiving and misleading the public.

The invalidity is claimed to arise from the alleged fact that complainant did not originally patent the use of *fat liquor alone*, but only the compound embraced in the second claim of the reissued patent; that the claim for fat liquor alone in the reissue is for a new invention. The decision of this court in the Klein case negatives this charge conclusively, by holding that the invention did embrace fat liquor alone.

The power and duty of granting a new patent for the original invention, upon a surrender of the old, is confided to the Commissioner of Patents; and his decision is not re-examinable by the courts, unless it is apparent upon the face of the patent that he has exceeded his authority, or unless there is a clear repugnancy between the old and the new patent, or unless the new has been obtained by fraud and collusion between the Commissioner and the patentee. The presumption upon all the points is in favor of regularity and validity of the reissue. *Potter v. Holland*, 4 Bl. C. C. 242; *Battin v. Taggart*, 17 How. 84 [6 Am. & Eng. 242]; *O'Reilly v. Morse*, 15 How. 112 [5 Am. & Eng. 483];

Argument of counsel.

Hussey v. McCormick, 1 Fish. 515; Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].

Mr. T. L. Wakefield, for appellees :

The first claim of the patent is for the employment of fat liquor alone generally, either hot or cold, at any desired temperature, in the state in which it comes from the mill, in the treatment of leather substantially as described. Booth v. Kennard, 1 Hurls. & N. 527; Stevens v. Keating, 2 Web. Pat. Cas. 172; O'Reilly v. Morse, 15 How. 119 [5 Am. & Eng. 483]; Curtis, § 142-3.

He says, that in treating with fat liquor, it is *desirable*, not essential, to heat it to or near the boiling point.

If a construction should be given to the first claim, that the application of heat to fat liquor, and the use of the liquor as described while in a heated state, and that such liquor should be heated to or near the boiling point, it must follow, either that it is to be applied at that temperature, in which case *it is pernicious, and will spoil the skin*, and the patent is void for want of utility; or that it must cool before use, in which case *no limit* is made as to the temperature to which it should cool before use. And this must be learned by *experiment* by every operator, and the patent is void for uncertainty and ambiguity.

Wood v. Underhill, 5 How. 4 [4 Am. & Eng. 551].

The proportions of such compound are not fixed, but are in all respects indefinite and uncertain, to be ascertained only by trial; and the process of preparing leather by means of such compound is not patentable.

Tyler v. Boston, 7 Wall. 327 [8 Am. & Eng. 1]; Wood v. Underhill, 5 How. 1 [4 Am. & Eng. 551]; Parker & Stiles, 5 McLean, 54.

The reissued letters patent are void, because they were not granted for the *same invention* as that embodied in the original letters patent.

Reissued letters patent must, by the express words of the statute, be *for the same invention*; and consequently,

Opinion of the court.

when it appears, on a comparison of the two patents as matter of legal construction that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid, as that state of facts shows that the Commissioner, in granting the new patent, exceeded his jurisdiction; for it is clear that the Commissioner has no jurisdiction to grant a reissue unless it be for the same invention as that embodied in the original letters patent.

Seymour v. Osborne, 11 Wall. 544 [8 Am. & Eng. 290]; Battin v. Taggart, 17 How. 83 [6 Am. & Eng. 242]; Sickles v. Evans, 2 Cliff. 203; O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483]; Allen v. Blunt, 3 Story, 744.

The complainant, patentee, was not the original and first inventor or discoverer of any material and substantial part of the thing patented. The evidence is clear and uncontradicted that the use of fat liquor for the purpose of softening leather generally, in the manner substantially set forth in the letters patent, had been known and in almost universal use among manufacturers of leather for many years prior to complainant's alleged invention. The claim rests solely on the alleged new application of fat liquor to bark-tanned sheep and lamb skins. In this case it is manifest that the *new purpose*, viz: the application of fat liquor to bark-tanned lamb and sheep skins, is so analogous and cognate to that of such prior purpose and use that it falls within the rule, that "a mere application of an old contrivance in the old way to an analogous subject, without any novelty or invention in the mode of applying such old contrivance to the new purpose, is not a valid subject matter of a patent."

Mr. Justice FIELD delivered the opinion of the court:

This is a suit for an infringement of a patent, obtained by the complainant for an alleged new and useful improvement in the preparation of leather, with a prayer that the

Opinion of the court.

defendants be decreed to account for and pay to him the gains and profits derived by them from making, using and vending the improvement, and be enjoined from further infringement.

The patent bears date in February, 1870, and was issued upon a surrender and cancellation of a previous patent obtained by the complainant in August, 1869, upon the allegation that the original patent was inoperative and invalid by reason of an insufficient and defective specification of the improvement. The validity of the reissued patent is assailed on the ground that it describes a different invention from that claimed in the original patent, and for want of novelty in the invention. Other grounds of invalidity are also stated; but, in the view we take of the case, they will not require consideration.

In the schedule accompanying the patent, giving a description of the alleged invention, and constituting a part of the instrument, the complainant declares that he has "invented a new and useful improvement in the preparation of leather;" that "the invention consists in a novel preparation of what is known as bark-tanned lamb or sheep-skin," by which the article is rendered soft and free, and adapted, among other uses, for the manufacture of what are termed "dog-skin gloves;" and that "the principal feature of the invention consists in the employment of what is known among tanners and others as 'fat liquor,' which is ordinarily obtained by scouring deer-skin after tanning in oil," but which may be produced by the cutting of oil with a suitable alkali. The schedule then proceeds to state that in treating the leather with fat liquor "it is *desirable* to heat the liquor to or near the boiling-point, and that it is *preferred* to use the same in connection with other ingredients," such as soda, common salt, and soap, in specified quantities for each ten gallons of the heated liquor; and that "to effect the treatment" the skin should be well dipped in or saturated with the fat liquor or com-

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pound, of which fat liquor is the base. The schedule closes by a declaration that what the patentee claimed and desired to be secured by letters patent was :

"1. The employment of fat liquor in the treatment of leather substantially as specified.

2. The process, substantially as herein described, of treating bark-tanned lamb or sheep skin by means of a compound composed and applied essentially as specified."

It is clear from this statement that the patent is for the use of fat liquor in any condition, hot or cold, in the treatment of leather, and for a process of treating bark-tanned lamb or sheep skin, by means of a compound in which fat liquor is the principal ingredient. The state of the liquor is not mentioned as essential to the treatment or to accomplish any of the results sought. It is only stated as a thing to be *desired*, that the liquor should be heated, and that it would be *preferable* that other ingredients were mixed with the heated liquor to make the compound mentioned. In other words, the specification declares, that by heating the liquor the effect desired will be more readily produced ; that is, more speedily or with less trouble and expense, not that the heating is in any respect essential to the treatment. Where a useful result is produced in any art, manufacture or composition of matter by the use of certain means for which the inventor or discoverer obtains a patent, it is, as justly observed by the presiding justice of the Circuit Court, too plain for argument, that the means described must be the essential and absolutely necessary means, and not mere adjuncts which may be used or abandoned at pleasure.

The original patent was less extensive in its claim than the reissue. That patent was for a process of treating bark-tanned lamb or sheep-skin by means of a compound, in which heated fat liquor was an essential ingredient. The specification was explicit in this particular, and left no doubt on the subject. The reissued patent covers the use of

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the fat liquor in any condition, hot or cold, and when used alone or in a compound with other ingredients, and thus has a more extended operation, bringing under it manufactures not originally contemplated by the patentee. Is such a reissue valid?

The Statute of 1836, 5 Stat. at L. 122, under which the reissue was granted, provided that whenever any patent was inoperative or invalid by reason of a defective or insufficient description or specification, or by reason of the patentee claiming as his own invention more than he had a right to claim as new, if the error arose from inadvertence, accident or mistake, and without any fraudulent or deceptive intention, it should be lawful for the Commissioner, upon the surrender of such patent and the payment of a prescribed duty, to cause a new patent to be issued to the inventor for the *same invention*, for the residue of the period then unexpired, in accordance with the corrected description and specification.

According to these provisions, a reissue could only be had where the original patent was inoperative or invalid, by reason of a defective or insufficient description or specification, or where the claim of the patentee exceeded his right; and then only in case the error committed had arisen from the causes stated. And as a reissue could only be granted for the same invention embraced by the original patent, the specification could not be substantially changed, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the invention as originally claimed. A defective specification could be rendered more definite and certain so as to embrace the claim made, or the claim could be so modified as to correspond with the specification; but except under special circumstances, such as occurred in the case of *Morey v. Lockwood*, 8 Wall. 230 [8 Am. & Eng. 78], where the inventor was induced to limit his claim by the mistake of the Commissioner of Patents, this was the extent to

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which the operation of the original patent could be changed by the reissue. The object of the law was to enable patentees to remedy accidental mistakes, and the law was perverted when any other end was secured by the reissue.

Judged by that law, and the provisions of the act of 1870, 17 Stat. at L., 198, on this subject are substantially the same, there can be no doubt of the invalidity of the reissue. The original patent was not inoperative nor invalid from any defective or insufficient specification. The description given of the process claimed was, as stated by the patentee, full, clear and exact, and the claim covered the specification; the one corresponded with the other. The change made in the old specification, by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience, and the insertion of an independent claim for the use of fat liquor in the treatment of leather generally, operated to enlarge the character and scope of the invention. The evident object of the patentee in seeking a reissue was not to correct any defects in specification or claim, but to change both, and thus obtain, in fact, a patent for a different invention. This result the law, as we have seen, does not permit.

The decision of the Commissioner in granting the reissue is, it is true, so far conclusive as to preclude in the present suit for infringement any inquiry into its correctness outside of the patents themselves. His action in any case, within the limits of his authority, is not open to collateral impeachment. But that authority being limited to a reissue for the same invention as that embraced in the original patent, a reissue for anything more is necessarily inoperative and void. To determine the identity of the invention, the two patents may be compared. Thus compared, the reissue here appears on its face to be for a different invention, and the Commissioner, therefore, exceeded his authority in issuing it. *Seymour v. Osborne*, 11 Wall. 544

Notes and Citations.

[8 Am. & Eng. 290] ; Wicks v. Stevens, 2 Woods, C. C. 312.

In the case of Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244], the question was not before the court whether the reissued patent was invalid because not for the same invention. The point was not made in that case in the court below, and for that reason, it was stated, the point could not be made here. It was to be presumed, said this court, until the contrary was made to appear, that the Commissioner did his duty correctly in granting the reissue. What was subsequently said of the character of the first claim, so far as it conflicts with the construction here given, does not meet our approval, after the extended consideration the subject has since received.

But, assuming that the reissue is not void for the reasons stated, the patent is still invalid for want of novelty in the alleged invention. The use of fat liquor in the treatment of bark-tanned skins was general with manufacturers for many years previous to the alleged invention. Testimony to this effect is given by numerous witnesses. It would subserve no useful purpose to state this testimony ; it is set forth with ample fullness in the opinion of the Circuit Court. It is sufficient for us to say, that it is entirely satisfactory to our minds.

The decree is affirmed.

93 U. S. 464-465.

Notes:**1. Reissues void for want of identity with original patent:**

Collar Co. v. Van Deusen, 23 Wall. 530 [p. 156 *ante*].

Wood Paper Patent, 23 Wall. 566 [p. 199 *ante*].

Powder Co. v. Powder Works, 98 U. S. 126.

Ball v. Langles, 102 U. S. 128.

Heald v. Rice, 104 U. S. 737.

Mathews v. Boston Machine Co., 105 U. S. 54.

Bantz v. Frantz, 105 U. S. 160.

Clements v. Odorless Co., 109 U. S. 641.

McMurray v. Mallory, 111 U. S. 97.

Notes and Citations.

Eagleton v. West & Bradley Mfg. Co., 111 U. S. 490.
Torrent & Arms Co. v. Rodgers, 112 U. S. 659.
Eachus v. Broomall, 115 U. S. 429.
Hartshorn v. Saginaw Barrel Co., 119 U. S. 664.
Worden v. Searles, 121 U. S. 14.
Parker & Whipple Co. v. Yale Clock Co., 123 U. S. 87.

3. Permissible variation in reissue specifications:

O'Reilly v. Morse, 15 How. 62 [5 Am. & Eng. 483].
Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].
Eames v. Andrews, 122 U. S. 40.

In reissue claims:

Battin v. Taggart, 17 How. 74 [6 Am. & Eng. 242].
Rubber Co. v. Goodyear, 9 Wall. 788 [8 Am. & Eng. 150].
Manufacturing Co. v. Ladd, 102 U. S. 408.

5. Reissue proceedings, when conclusive and when not:

Grant v. Raymond, 6 Pet. 218 [4 Am. & Eng. 245].
Shaw v. Cooper, 7 Pet. 292 [4 Am. & Eng. 286].
Stimpson v. Railroad, 4 How. 380 [4 Am. & Eng. 398].
Seymour v. Osborne, 11 Wall. 516 [8 Am. & Eng. 290].
Klein v. Russell, 19 Wall. 433 [9 Am. & Eng. 244].
Corn Planter Patent, 23 Wall. 181 [p. 1 *ante*].
Powder Co. v. Powder Works, 98 U. S. 126.
Ball v. Langles, 102 U. S. 128.

Notes and Citations.

Patent in suit:

No. 93,910. Russell, N. C. August 17, 1869.

Reissue No. 3,816. February 1, 1870. Preparation of
Leather.

OTHER SUITS ON SAME PATENT :

Russell v. Place, 1871. 9 Blatch. 173; 5 Fish. 134.

Russell v. Klein, 1874. 19 Wall. 433.

Russell v. Place, 1877. 94 U. S. 606.

Cited:

IN SUPREME COURT IN :

Russell v. Place, 1877. 94 U. S. 606; Bk. 24 L. ed. 214.

Ball v. Langles, 1880. 102 U. S. 128; Bk. 26 L. ed. 104.

Hopkins & Dickinson Mnfg. Co. v. Corbin, 1881. 103 U. S. 786;
Bk. 26 L. ed. 610.

IN CIRCUIT COURTS IN :

Herring v. Nelson, September, 1877. 14 Blatch. 293; 3 Ban. &
Ard. 55; 12 O. G. 753.

Atlantic Giant Powder Co. v. Goodyear, December, 1877. 3 Ban.
& Ard. 161; 13 O. G. 45.

Gould v. Ballard, June, 1878. 3 Ban. & Ard. 324; 13 O. G. 1081.

Badische Anilin & Soda Fabrik v. Higgins, September, 1878. 15
Blatch. 290; 3 Ban. & Ard. 462; 14 O. G. 414.

Christman v. Rumsey, September, 1879. 17 Blatch. 148; 4 Ban.
& Ard. 506; 17 O. G. 903.

Notes and Citations.

- Giant Powder Co. v. Cal. Vigorit Powder Co., 1880. 6 Sawyer, 508; 4 Fed. Rep. 720; 18 O. G. 1339.
- Atwood v. Portland Co., July, 1880. 5 Ban. & Ard. 533; 10 Fed. Rep. 283.
- Putnam v. Tinkham, October, 1880. 4 Fed. Rep. 411; 11 Rep. 78.
- Washburn & Moen Mnfg. Co. v. Haish, December, 1880. 10 Biss. 65; 4 Fed. Rep. 900; 19 O. G. 173.
- Wilson v. Goon, December, 1880. 18 Blatch. 532; 6 Fed. Rep. 611; 19 O. G. 482.
- Flower v. Raynor, 1881. 5 Fed. Rep. 793; 11 Reporter, 555; 19 O. G. 425.
- Smith v. Merriam, January, 1881. 6 Fed. Rep. 713; 11 Reporter, 729; 19 O. G. 601.
- Edgerton v. Furst & Bradley Mnfg. Co., July, 1881. 10 Biss. 402; 9 Fed. Rep. 450; 21 O. G. 261.
- Kells v. McKenzie, November, 1881. 9 Fed. Rep. 284; 20 O. G. 1663.
- Reay, Ex'x. v. Raynor, January, 1884. 22 Blatch. 13; 19 Fed. Rep. 308; 26 O. G. 1111.
- Arnold v. Phelps, May, 1884. 20 Fed. Rep. 315; 29 O. G. 538.
- Scrivner v. Oakland Gas Co., September, 1884. 10 Sawyer, 390; 22 Fed. Rep. 98; 18 Reporter, 806.
- Flower v. City of Detroit, November, 1884. 22 Fed. Rep. 292.
- Spaeth v. Barney, January, 1885. 22 Fed. Rep. 828; 19 Rep. 824; 30 O. G. 997.
- Hammond v. Franklin, January, 1885. 23 Blatch. 77; 22 Fed. Rep. 833; 30 O. G. 1324.
- Haines v. Peck, February, 1886. 26 Fed. Rep. 625; 35 O. G. 1227.
- Yale Lock Mnfg. Co. v. New Haven Sav. Bank, September, 1887. 32 Fed. Rep. 167.
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IN CANADIAN COURTS IN:

- Withrow v. Malcolm, September, 1882. 6 Ontario Rep. 12.
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IN TEXT BOOKS:

2 Abb. Pat. Laws, 1886, pp. 192, 193, 196, 198.

Walker on Pats., 1883, p. 176.



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OF

DECISIONS OF THE SUPREME COURT OF THE UNITED STATES IN PATENT CASES REPORTED IN THIS VOLUME.

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Abandoned Experiment.	
1. Where the alleged anticipating automatic machine was never used but once, when it was worked by hand, <i>held</i> it was a mere experiment, and were it not for the application for a patent, would justly be regarded as an abandoned experiment. Corn-Planter Patent.	1
2. If, upon the whole of the evidence, it appears that the alleged prior invention or discovery was only an experiment and was never perfected or brought into actual use, but was abandoned and never revived by the alleged inventor, the mere fact of having unsuccessfully applied for a patent therefor, cannot take the case out of the category of unsuccessful experiments. Corn-Planter Patent.	1
3. <i>Semble</i> that the doctrine that the patent of an originator of a complete and successful invention cannot be avoided by proof of any number of incomplete and imperfect experiments made by others at an earlier date, though the experimenters may have had the idea of the invention; and may have made partially successful efforts to embody it in a practical form, applies to patents for chemical products as well as for machines. The Wood Paper Patent	199

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See Damage, 2, 3, 6 ; Right of Action, 1.

Actual Damages.

See Damages, 3, 5 ; Right of Action, 1.

Aggregation.

See Combination, 1.

Amendment to Bill.

1. Where the original bill set up only the first reissue of a patent that had been twice reissued, but the proofs both

- for final hearing and before the master on the accounting had reference to the second reissue, as also the proceedings on the master's report, an order of the court directing that the record be amended by inserting in the bill an averment of the second reissue was properly made, even after the final decree. Tremolo Patent . . . 146
2. An amendment which changes the character of a bill ought not, generally to be allowed after a case has been set for hearing, and still less after it has been heard. The answer might become inapplicable if such an amendment were permitted. Tremolo Patent 146

Application.

1. A mere application for a patent is not a bar to a further patent under Act 1836, sec. 7 ; it can only have a bearing on the question of prior invention or discovery. Corn-Planter Patent 1
- See Abandoned Experiment, 1.

Apportionment of Profits.

See Profits, 3.

Arbitration.

1. Arbitrators as well as courts are presumed to decide correctly until the contrary appears ; and where the record failed to embody complainant's patent or any authentic description of the alleged infringing machine, it was presumed that the arbitrator construed the patent correctly and found correctly as to the alleged infringement. Reedy v. Scott 133
2. Where an agreement to arbitrate and submission in form were duly executed before the original patent was surrendered for reissue, and the question submitted was examined and decided by the arbitrator without objection from either party growing out of the surrender or reissue, which were shown not to have changed the substantial issue in the litigation, and complainant alleged in his supplemental bill that the reissue was for the same invention as that in the original patent, held that objection to the award founded on the surrender and reissue pending the arbitration would be disregarded. Reedy v. Scott 133

Article of Manufacture.

1. Articles of manufacture may be new in the commercial sense when they are not new in the sense of the patent law. Union Paper Collar Co. v. Van Deusen 156

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2. New articles of commerce are not patentable as new manufactures, unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture. Union Paper Collar Co. v. Van Deusen 156
 3. Where the original patentee invented neither the process nor the article made, conceived the idea that an article having certain qualities was desirable for his purpose, employed a manufacturer to produce the desired article, but gave him no information as to the constituents to be used or the mode of operation for compounding them, *held* he was not the inventor. Union Paper Collar Co. v. Van Deusen 156
- See Particular Patents, 5, 26.

Bar to Patent.

See Application, 1.

Cases Qualified.

1. The case of Klein v. Russell reported in 19 Wallace stated and qualified. Russell v. Dodge 495

Charge to Jury.

1. Where on the giving of evidence tending to prove disputed facts, the court instructed the jury that they had been proved, the judgment was reversed on the ground alone that the court had assumed a function which belonged to the jury. Burdell v. Denig 420

Claim.

1. An inventor cannot claim such parts of a machine as another had previously devised, and which worked well after the machine was perfected, although this was not till after the other had perfected his. But he may claim them in a new combination of them with devices of his own which result is a useful machine. Corn-Planter Patent 1
2. The summary of the patentee's claim, usually annexed to the specification, admits that all that is not included is old, and that it is sufficient compliance with the law (Act 1836, sec. 6), requiring the new to be distinguished from the old. Corn-Planter Patent 1

See Particular Patents, 16, 17.

Combination.

1. A combination to be patentable must produce a different

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- force, effect, or result in the combined forces or processes from that given by their separate parts. There must be a new result produced by their union; if not so, it is only an aggregation of separate elements. *Reckendorfer v. Faber* 373
2. A combination of old elements is not infringed by a use of less than all of its elements. *Reedy v. Scott* 133
- See Claim, 1; Particular Patents, 2, 11, 12, 15, 17.

Commissioner's Decisions.

1. The decision of the Commissioner of Patents is not conclusive on the question of invention, its utility, and importance, novelty and prior use. His decision in the allowance and issue of a patent creates a *prima facie* right only and upon all questions involved therein the validity of a patent is subject to the examination of the courts. *Reckendorfer v. Faber* 373
2. The question of fraud in obtaining a reissue must be regarded as settled by the decision of the Commissioner of Patents in granting it. *Corn-Planter Patent* . . . 1
3. Unless it is apparent upon the face of the reissue that the Commissioner has exceeded his authority, his decision is final and conclusive, except if there is such repugnancy between the old and the new patent, that the reissue must be held as a matter of legal construction to be not for the same invention as that embraced in the original. *Union Paper Collar Co. v. Van Deusen* . 156
4. The action of the Commissioner of Patents in granting a reissue within the limits of his authority is not open to collateral impeachment, but his authority being limited to a reissue for the same invention, the two patents may be compared to determine the identity of the invention. If the reissued patent, when thus compared, appears on its face to be for a different invention, it is void, the Commissioner having exceeded his authority in issuing it. *Russell v. Dodge* 495

Compensatory Damages.

See Damages, 5, 6.

Conclusiveness of Commissioner's Decision.

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Construction of Statutes.

1. Under Act 1836, sec. 6, no one is entitled to a patent unless (1) he has discovered or invented an art, machine, or manufacture, (2) which art, machine, or manufac-

- ture is new, (3) which is also useful, (4) which is not known or patented. It is not sufficient that it is alleged or supposed, or even adjudged by some officer to possess these requisites. It must in fact possess them, and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established, to wit: before the judicial tribunals of the country. *Reckendorfer v. Faber* . . . 373
- Act 1836, § 6, . . . See Claim, 2.
- " " § 7, . . . See Application, 1.
- " " § 15, . . . See Invention, 2.
- Act July 8, 1870, See Right of Action, 1.
- R. S. . . § 4919, See Damages, 3, 6.
- 4921, See Damages, 6.

Contract.

1. Where in a certain contract "the said parties," L., on the one hand, and M. and H. on the other, bound themselves mutually and their "legal representatives to the covenants therein," to continue in force till the expiration of the term of certain letters patent or "during such period as the same may be hereinafter renewed or extended," held that L. having treated the defendant corporation as successors to M. and H., it was entitled to the benefit of the contract and to the use thereunder of a particular device under the extension of the original patent now assigned to plaintiff. *Hammond v. Mason, etc., Organ Co.* . . . 135
2. A particular instrument construed to be a contract and not a revocable power of attorney. *Burdell v. Denig* . . . 420
3. Where an inventor made several agreements on the same day with the defendants; in the one wholly selling his unpatented invention, the patent to issue to defendants; in another licensing the use of the invention in connection with his (inventor's) former patents; and in the third granting defendant certain right on failure to secure the patent, held they should be all construed together and that defendants were protected thereunder from liability as infringers. *Hammond v. Mason, etc., Organ Co.* . . . 434

Damages.

1. In cases where profits are the proper measure of damages, it is the profits which the infringer makes or ought to make, which govern, and not the profits which plaintiff can show he might have made. The rule of profits applies to mainly cases in equity, upon the idea that the

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infringer is a trustee for the profits for the owner.	
Burdell v. Denig	420
2. The primary and true criterion of damages in an action at law is the sales of licenses of machines, or an established royalty. Burdell v. Denig	420
3. In an action at law for the infringement of a patent the jury is required to find the actual damages sustained by the plaintiff. The court has power in such case to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs. R. S. sec. 4919. Birdsall v. Coolidge	445
4. Damages are given as a compensation, recompense, or satisfaction to the plaintiff for an injury actually received by him from the defendant. Birdsall v. Coolidge	445
5. Compensatory damages and actual damages mean the same thing. Birdsall v. Coolidge	445
6. In proceedings against an infringer for damages the remedy at law (R. S. sec. 4919) remains unchanged, since the act of 1870, but in equity (R. S. sec. 4921), where the gains and profits are clearly not sufficient to compensate the complainant for the injury sustained by the infringement, damages of a compensatory character may also be allowed. Birdsall v. Coolidge	445
7. Evidence of an established royalty will furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement, or in the extensive and protracted use of the same, without palliation or excuse, but when the use is a limited one and for a brief period, it is error to apply that rule arbitrarily and without any qualification. Birdsall v. Coolidge	445

Description.

See Prior Publication, 1.

Double Use.

1. The application of an old process to a new subject without any exercise of the inventive faculty, and without the development of any idea which can be deemed new or original in the sense of the patent law, is not patentable. Brown v. Piper 272
 2. A double use is not patentable, nor does its cheapness make it so. Reckendorfer v. Faber 373
- See Particular Patents, 4.

Employer and Employee.

1. The relation of employer and employé, in regard to the origin of inventions, stated. *Union Paper Collar Co. v. Van Deusen* 156
2. If suggestions communicated by the employé constitute the whole subject of the improvement, the patent if granted to the employer as his invention, is invalid, because the real invention or discovery belongs to the person who made the suggestions. *Union Paper Collar Co. v. Van Deusen* 156

Equity.

See Damages, 6 ; Right of Action, 1.

Evidence.

1. A receipt executed after suit brought, *held* properly admitted in evidence to reduce the amount of the recovery. *Burdell v. Denig* 420
- See Charge to Jury, 1 ; State of the Art, 1.

Extension.

See Contract, 1.

Formal Change.

1. The mere carrying forward, or new or more extended application of the original thought, a change only in forms, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent. *Roberts v. Ryer* 302
2. The law requires more than a change of form, or juxtaposition of parts, or of the external arrangement of things, or of the order in which they are used to give patentability. *Reckendorfer v. Faber* 373
3. Where the same movement was obtained in a machine by a change in the attachment of one part to another, it was *held* not a change of principle. *Ives v. Hamilton* . 405

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Identity of Products.

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Identity of Original and Reissue.

See Commissioner's Decisions, 4 ; Particular Patents, 12, 24, 26, 28 ; Reissue, 2.

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1. Where an invention is claimed as an improvement on an old machine, it is properly taken for granted that a practical mechanic is acquainted with the construction of the machine upon which the improvement is made.
Ives v. Hamilton 405
 See Particular Patents, 8.

Inchoate Right.

1. Right growing out of an unpatented invention may be sold.
Hammond v. Mason, etc., Organ Co. 434

Infringement.

1. To entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in respect to the United States, but to other parts of the world. Even if he did not know that the discovery had been made before, still he cannot recover if it had been in use or described in public prints, and if he be not in truth the original inventor. *Sewall v. Jones* 336
 2. To constitute an infringement, the thing used by the defendant must be such as substantially to embody the patentee's mode of operation, and thereby to attain the same kind of result, as was reached by his invention. The result need not be the same in degree. *Sewall v. Jones* 336
- See Combination, 2 ; Particular Patents, 1, 8, 13, 16, 17, 22, 27 ; Specification, 2 ; Supplemental Bill, 1.

Invention.*New Use of Old Organization.*

1. It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. *Roberts v. Ryer.* 302
 See Particular Patents, 4, 11, 18.

Want of Invention.

2. The defense of want of invention is provable, when it exists under any general denial and is not excluded by Act 1836, sec. 15. *Reckendorfer v. Faber* 373
- See Article of Manufacture, 2, 3 ; Claim, 1 ; Double Use, 1, 2 ; Formal Change, 1, 2 ; Mechanical Skill, 1 ; Particular Patents, 2, 14, 21, 26, 29.

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1. Courts will take notice of whatever is generally known within the limits of their jurisdiction. This extends to such matters of science as are involved in cases brought before the court. <i>Brown v. Piper</i>	272
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Particular Patents.	
1. Letters patent No. 17,387, M. A. C. Mellier, May 26, 1857, paper pulp process construed and <i>held</i> A that the patent covers the process claimed when applied to wood as well as when applied to straw. B The internal pressure as described in the specification, is to be ascertained by deducting from the pressure marked by the steam gauge, the weight of one atmosphere, and <i>held</i> infringed. <i>The Wood Paper Patent</i>	199
2. Letters patent No. 19,783, H. L. Lipman, March 30, 1858, Lead Pencil and Eraser, <i>construed</i> to be for a combination consisting in the application of a piece of rubber to one end of the same piece of wood which makes a lead pencil, in which no effect is produced or result follows from the joint use of the two, and <i>held</i> wanting in patentable invention. <i>Reckendorfer v. Faber</i>	373

3. Letters Patent No. 25,418, M. L. Keen, September 13, 1859, Boiler for making Paper Pulp from Wood, and No. 38,901, M. L. Keen, June 16, 1863, Boiler for making Paper Pulp *construed* to be for combinations and *held* not infringed. The Wood Paper Patent 190
4. The claim of letters patent No. 31,736 (old number 732), E. Piper, March 19, 1861, Preserving Fish, for "preserving fish or other articles in a close chamber by means of a freezing mixture, having no contact with the atmosphere of the preserving chamber, substantially as set forth." When taken in connection with the explanations contained in the specification, *construed* to be for the application to articles to be preserved of the degree of cold necessary to preserve them, by means of a "close chamber" in which they are to be placed, and a "freezing-mixture, having no communication with the atmosphere of the preserving-chamber" Such claim is infringed by anyone who produces this result by the means designated, in any way substantially the same as that described, having the feature of the non-contact of the freezing mixture with the air of the preserving chamber, *held* to be for the application of an old process to a new subject not involving invention and is anticipated by the patent No. 12,058, granted to John Good, December 12, 1854, for a Corpse-Preserver. Brown v. Piper 278
5. Letters patent No. 34,928. I. Winslow, April 8, 1862, Canning Green Corn for an article of manufacture, *held* wanting in novelty in view of Durand's English patent No. 3,372 of 1810. Sewall v. Jones 336
6. The double use of the word "about" indicates that time is not to be considered as precisely specified. Sewall v. Jones 336
7. Letters patent No. 35,274. I. Winslow, May 13, 1862, Preserving Corn, for the process *held* wanting in novelty in view of English patent No. 3,372 to Durand of 1810. Sewall v. Jones 336
8. The claim of letters patent No. 51,310, P. Hamilton, December 5, 1865, Saw Mill, for "giving to the saw in its downward movement a rocking or rolling motion, by means of the combination of the cross-head working in the curved guides at the upper end of the saw, the lower end of which is attached to a cross-head working in straight guides and pivoted to the pitman below the saw, with the crank-pin," *held* infringed by the combination of a guide consisting of two straight lines—an

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- equivalent for the curved guide, with the lower end of the saw attached below instead of above the cross-head, both being calculated to give to the saw the precise rocking or vibratory motion desired. The description of the invention, it being an improvement on an old machine, *held* sufficiently specific. : Ives v. Hamilton . 405
9. The patent, No. 124,340, John Dalton, March 5, 1872. Ladies' Hair-Net. For "a head or hair-net composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread" is void, because there is no invention in it, and because various fabrics had been made and were in public use for a long time before his application, which are precisely and accurately described by Dalton in the specification and claim of his patent. Dalton v. Jennings 459
10. Letters patent No. 137,893. M. Cohn, April 15, 1873. Corsets, for a manufacture *held* anticipated by the invention described in Johnson's English provisional specification No. 143 of January 20, 1854. Cohn v. United States Corset Co. 473
11. Reissued letters patent No. 455, D. W. C. Sanford, May 21, 1857, *construed* in view of the original letters patent No. 13,802, November 13, 1855, Refrigerator, and of patent No. 14,510, A. S. Lyman, March 25, 1856, Method of Cooling and Ventilating Rooms, to be for the combination of the use of the descending current of air with the device for the circulation, *held* to be for a new use of an old machine and not involving invention and to be anticipated by the Lyman patent. Roberts v. Ryer 302
12. *Held* that reissued letters patent No. 1,036, 1,038 & 1,039, G. W. Brown, September 11, 1860, original patent No. 9,893, August 2, 1853, are not for substantially the same combination. Corn-Planter Patent 1
13. The claim of reissued letters patent No. 1,036, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, *construed* and limited by reference to the specification in view of words "substantially as and for the purpose set forth" appended to the claim to be for a combination of the material parts of the entire machine, *held* not anticipated, valid and infringed by a machine constructed with more expensive features. Corn-Planter Patent 1
14. Reissued letters patent No. 1,037, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893,

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August 2, 1853, construed and <i>held</i> there was nothing in the particular form and shape of the runner claimed which is sufficiently diverse from others that precede it, to entitle it to the merit of an invention. Corn-Planter Patent	1
15. The claim of reissued letters patent No. 1,038, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, <i>construed</i> to be for a novel combination producing new and useful results and <i>held</i> that it is no objection to the validity of a patent for such a combination that some of the elements of which it is composed are not new. Corn-Planter Patent	1
16. Reissued letters patent No. 1,038, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, <i>held</i> to sufficiently distinguish the new from the old parts by the summary of its claim; is valid and infringed. Corn-Planter Patent	1
17. Claim 1 of reissued letters patent No. 1,039, G. W. Brown, September 11, 1860, Seed-Planter, original patent No. 9,893, August 2, 1853, for "mounting the attendant upon a seed-planting machine in such a position that he can see the marks made upon the ground and operate the dropping of the seed accordingly" if construed as a claim for a result irrespective of the means of accomplishing it, is void. But if, in order to give a favorable construction, so as to sustain the patent, if it can fairly be done, the claim is qualified by the words "substantially as herein set forth," and the means are described in the specification, it is no longer open to the objection. Claim 2 <i>held</i> a new and valid combination and the reissue <i>held</i> infringed. Corn-Planter Patent	1
18. Claim 1 of reissued letters patent No. 1,091, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, <i>held</i> wanting in novelty. Claim 2, <i>held</i> to be for the application of an old device to a new use, and the reissue <i>held</i> void. Corn-Planter Patent	1
19. The claim of reissued letters patent No. 1,092, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, the particular location of the driver's seat, so that by the throwing of his weight, certain results could be produced, <i>held</i> in view of state of art not to involve invention. Corn-Planter Patent	1
20. The claim of reissued letters patent No. 1,093, G. W.	

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Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, <i>held</i> wanting in novelty if broadly construed; if limited is substantially identical with reissue claim No. 1,038, G. W. Brown, September 11, 1860. Corn-Planter Patent	1
21. The claim of reissued letters patent No. 1,094, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, for a peg or stop to prevent the rear part of a machine from tipping so far as to dump the driver on the ground, is too frivolous a device to be regarded as an invention, and a patent for it is void. Corn-Planter Patent	1
22. The claim of reissued letters patent No. 1,095, G. W. Brown, December 11, 1860, Seed-Planter, original patent No. 12,811, May 8, 1855, sustained as novel and <i>held</i> infringed. Corn-Planter Patent	1
23. Reissued letters patent No. 1,448, Watt & Burgess, April 7, 1863, Paper Pulp Manufacture, Product, original patent No. 11,343, July 18, 1854, for a pulp suitable for the manufacture of paper made from wood or other vegetable substances, <i>held</i> void for want of novelty in view of the fact that paper pulp extracted from wood by chemical agencies alone, is not a different manufacture from paper pulp obtained from vegetable substances by chemical and mechanical processes. The Wood Paper Patent	199
24. Reissued letters patent No. 1,449, Watt & Burgess, April 7, 1863, Manufacture of Paper-Pulp Process, <i>construed</i> to be for a single-step process, and <i>held</i> in view of original patent, No. 11,343, July 18, 1854, for a process of three steps not to be for the same invention, and void. The Wood Paper Patent	199
25. Reissue No. 1,646. S. S. Gray. March 29, 1864. Shirt Collars. Original No. 38,961, June 23, 1863, <i>construed</i> in view of the fact that the object in turning down a collar on a curved line instead of a straight line, is precisely the same, whether the collar be all paper, paper and linen, or all linen. Hence, where it appeared that linen collars had been turned over on a curved line to prevent wrinkling, and to afford space for the cravat, <i>held</i> , that it was not patentable to apply the same mode of turning down to collars of paper or paper and linen. Union Paper Collar Co. v. Van Deusen . . .	156
26. Where the original letters patent No. 38,664, for Improvement in Paper Shirt Collars, granted to Andrew A. Evans, May 26, 1863, stated the invention to consist,	

first, in making the collars of parchment paper, or paper prepared with animal sizing; and second, in coating one or both side of the collar with a thin varnish of bleached shellac to give smoothness, strength and stiffness, and to repel moisture, the claim being for "a shirt collar made of parchment paper, and coated with varnish of bleached shellac, substantially as described, and for the objects specified." *Held*, that its reissue No. 2,309, July 10, 1866, which described a paper other than parchment paper, or one prepared with animal sizing, and which did not require either side of the collars to be coated with a varnish of bleached shellac for any purpose, the claim being for "a collar made of long-fiber paper, substantially such as is above described," was for a different invention from that embodied in the original patent. It appearing that the collars made by Evans, apart from the paper composing them, were identical in form, structure, and arrangement with collars previously made of linen, paper of different quality, and of other fabrics, and that Evans did not invent the special paper used by him, nor the process by which it was obtained; *held*, that he was not entitled to a patent for the collars as a new manufacture, neither as the inventor of the collars. Union Paper Collar Co. v. Van Deusen . . . 156

27. Letters patent No. 30,441, of E. H. Graham, of October 16, 1860, reissued May 28, 1867, No. 2,626, for "Picker Staff Motion in Looms," construed to have no relation to the mere form of a journal-bearing arm, nor to consist in arranging a journal-bearing arm in a slot in the rocker, but to embrace every combination of a rocker with a bed and loose journal-bearing arms, arranged so as to produce the result described in the specification as effected by the combination, and *held* that defendant infringes inasmuch as he employs a combination of a rocker with a bed by loose journals projecting on each side of the picker-staff, and the combination is effected by means of a journal-bearing arm, it is immaterial that the form of his journal-bearing arm is unlike that of complainant's, or that its mode of attachment is different, so long as it performs the same functions in substantially the same way. Mason v. Graham . . . 167

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was an essential ingredient, and a change was made (on its reissue No. 3,816, February 1, 1870) in the original specification by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience and by inserting an independent claim for the use of fat liquor in the treatment of leather generally, the character and scope of the invention as originally claimed were *held* to be so enlarged as to constitute a different invention. (The reissue also held void for want of novelty). *Russell v. Dodge* . . . 495

29. Reissued letters patent No. 3,863, J. Reckendorfer, March 1, 1870, original patent No. 36,854, November 4, 1862, Lead Pencil, *held* invalid for want of invention. *Reckendorfer v. Faber* 373

Patentability.

See Article of Manufacture, 2; Construction of Statutes, 1; Double Use, 1, 2; Formal Change, 1, 2; Mechanical Skill, 1; Product, 1, 2.

Persons Skilled in the Art.

See Improvement, 1; Prior Publication, 1.

Power of Attorney.

See Contract, 2.

Presumption.

See Arbitration, 1.

Prior Publication.

1. Unless the earlier printed and published description does exhibit the latter patented invention in such full and intelligent manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent. *Cohn v. United States Corset Co.* . . . 473
2. A patent is invalid if the invention claimed is found to be patented or described in a printed publication prior to the patentee's invention or discovery thereof; and it is enough if the thing patented is described, and not the steps necessarily antecedent to its production. *Cohn v. United States Corset Co.* 473
3. Thus, when the invention claimed is an article, it is not necessary, in order to render the patent void, that the prior publication should also contain a description of the process by which such article was made. *Cohn v. United States Corset Co.* 473

Prior Use.

Conclusiveness of Commissioner's Decision on Question of prior use. See Commissioner's Decisions, 1.

Process.

See Particular Patents, 1, 7, 24; Prior Publication, 3; Product, 1, 3.

Product.

1. A manufacture or a product of a process may be no novelty and therefore, unpatentable, while the process or agency by which it is produced may be both new and useful. The Wood Paper Patent. 199
2. In cases of chemical inventions, when the manufacture claimed as novel is not a new composition of matter, but an extract obtained by the decomposition or disintegration of material substances, it is of no importance, in considering its patentability to enquire from what it has been extracted. The Wood Paper Patent. . . . 199
3. When the substance of two articles produced by different processes is the same, and their uses are the same, they cannot be considered different manufactures. The Wood Paper Patent. 199

See Particular Patents, 23; Prior Publication, 3.

Profits.

1. If defendant has cheapened the cost of producing the infringing device by an improvement of his own, he is entitled to a corresponding credit in the ascertainment of the profits which complainants are entitled to recover. Mason v. Graham. 107
2. Where defendant had been in the habit of selling the infringing picker-staff motion both separately and attached to looms, in ascertaining his profits upon those sold with the looms, regard should be had to his profits upon those sold separately, rather than to the aggregate profits made by him upon the loom and attachment combined. Mason v. Graham. 107
3. Where defendants were dealers in musical instruments and some of the instruments bought and sold by them contained a tremolo attachment which infringed complainant's patent, and others not, defendants were properly allowed, in the ascertainment of profits made by them from the sales, to prove the general expenses of their business incurred in effecting the sales of all musical instruments, and deduct a ratable proportion from the gross profits made by the sale of the attachments. Tremolo Patent. 146

See Damages, 1.

Rehearing.

PAGE.

1. It is the well settled rule of this court that no rehearing is granted unless some member of the court who concurred in the judgment, expresses a desire for it, and not then unless the proposition receives the support of a majority of the court. *Ambler v. Whipple*. 128
2. A hearing had in this court on an imperfect record, where there was no laches or neglect for which the appellee should be held responsible in failing to examine and perfect the record before the hearing, the omissions in the record being material, would present a strong appeal for a reargument. *Ambler v. Whipple*. 128
3. But where the facts which were of record in the court showed that the sufficiency of the transcript on which the case was heard had been a matter of careful consideration by counsel for petitioners, and that it was finally accepted and filed, and that for two years and a half it remained on the docket and no attempt to correct it by *certiorari* or otherwise was made, *held* that it could not be said in the face of these facts, even if the omitted parts of the record were material, that the appellee was without fault in failing to have it brought up; and the petition for rehearing was denied. *Ambler v. Whipple*. 128

Reissue.

1. The purpose of a reissue is to render effectual the actual invention for which the original patent should have been granted,—not to introduce new features, therefore, in an application for a reissue, parol testimony is not admissible to enlarge the invention beyond what was described, suggested, or substantially indicated in the original specification, drawings, or Patent Office model. *Union Paper Collar Co. v. Van Deusen*. 156
2. Whether a reissued patent is for the same invention as the original, depends upon whether the specification and drawings of the reissued patent, are substantially the same as those of the original; and, if not, whether the omissions or additions are or are not greater than the law allows to cure the defect of the original. *Union Paper Collar Co. v. Van Deusen*. 156
3. Where a reissued patent is granted upon a surrender of the original, for its alleged defective or insufficient specification, such specification cannot be substantially changed in the reissued patent, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the invention as originally claimed. A defective specification can be rendered

more definite and certain so as to embrace the claim made, or the claim can be so modified as to correspond with the specification; but, except under special circumstances, this is the extent to which the operation of the original patent can be changed by the reissue. *Russell v. Dodge*

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See Amendment to Bill, 1; Particular Patents, 12-29; Supplemental Bill, 1.

Conclusiveness of Commissioner's Decision on grant of Reissue.

See Commissioner's Decisions, 2, 3, 4.

Right of Action.

1. Prior to the act of July 8, 1870, a patentee might proceed against an infringer either in equity or at law. In equity the infringer would be regarded as trustee of the owner of the patent as respects the gains and profits which he had made by the unlawful use of the invention. At law he could recover actual damages, the measure thereof being not what the defendants had gained, but what the plaintiff had lost. *Birdsall v. Coolidge*

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Right to Use.

Inventor's Right to Use his Invention.

See Invention, 1.

Royalty.

See Damages, 2, 7.

Sale.

See Inchoate Right, 1.

Specification.

1. The omission to mention in the specification something which contributes only to the degree of benefit, providing the apparatus would work beneficially and be worth adopting without it, is not fatal, while the omission of what is known to be necessary to the enjoyment of the invention is fatal. *Sewall v. Jones*
2. When the inventor says, "I recommend the following method," he does not thereby constitute such method a portion of his patent. His patent may be infringed although the party does not follow his recommendation, but accomplishes the same end by another method. *Sewall v. Jones*
3. Where a useful result is produced in any art, manufacture, or composition of matter by the use of certain

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means for which the inventor or discoverer obtains a patent, the means described must be the essential and absolutely necessary means, and not mere adjuncts, which may be used or abandoned at pleasure. <i>Russell v. Dodge</i>	495
See Claim, 2 ; Particular Patents, 8, 16.	

State of the Art.

1. Evidence of the state of the art is admissible in actions at law under the general issue without special notice, and in equity cases without any averment in the answer touching the subject. *Brown v. Piper* 272

"Substantially as Set Forth."

See Particular Patents, 13, 17.

Suggestions.

See Employer and Employé, 2.

Supplemental Bill.

1. Where a suit in equity under a patent is pending at the time of the reissue, a supplemental bill setting up the reissued patent is not a proper pleading to revive such a suit as nothing can be recovered, either as damages or profits for the infringement of the surrendered patent. The infringement of the reissued patent becomes a new cause of action for which in the absence of any agreement or implied acquiescence of the respondent, no remedy can be had except by the commencement of a new suit. *Reedy v. Scott* 133
2. But where the complainant, having reissued his patent pending a suit, set up this fact in a supplemental bill, all the proofs in the case being taken thereafter, and neither the respondent nor the court below made any objection to the irregularity of the pleadings, the irregularity was also disregarded on appeal by the court. *Reedy v. Scott* 133

Surrender of Patent.

1. The surrender of a patent to the Commissioner is an act which, in the judgment of the law, extinguishes it. It is a legal cancellation of it, and hence the patent can no more be the foundation for the assertion of a right, after the surrender, than could an act of Congress which had been repealed ; and it has frequently been determined that suits pending which rest upon an act of Congress fall with the repeal of it. Antecedent suits

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depend upon the patent existing at the time they were commenced, and unless it exists and is in force at the time of the trial and judgment the suits fail. *Reedy v. Scott*

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Triple Damages.

See Damages, 3.

Trustee.

See Damages, 1 ; Right of Action 1.

Utility.

Conclusiveness of Commissioner's Decision on Question of Utility.

See Commissioner's Decisions, 1.

Void Patent.

See Commissioner's Decisions, 4 ; Particular Patents, 2, 4, 5, 7, 9, 10, 11, 17, 18, 19, 20, 21, 23, 24, 28, 29 ; Prior Publication, 2 ; Specification, 1.

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